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ART. I.—*Anatomical Investigations, comprising Descriptions of Various Fasciæ of the Human Body; the Discoveries of the Manner in which the Pericardium is formed from the Superficial Fascia, &c. &c. &c.* By JOHN D. GODMAN, M. D. Lecturer on Anatomy and Physiology; Editor of the Journal of Foreign Medicine; Professor of Physiology to the Philadelphia Museum; Member of the Academy of Natural Sciences; Honorary Member of the Medical Societies of Philadelphia, Maryland, Baltimore, Lexington, Cincinnati, Pittsburg, &c.

CRITICISM, from the cognizance which it properly takes of the crimes of authorship, and from its being often prompted to the exercise of its severest prerogatives by unworthy motives, has long been proverbially odious. Indeed, it would appear, that reviewers too often enjoy a cruel pleasure in executing the just or unjust sentences of the literary tribunal upon the faulty or unfortunate. To heighten the zest of this savage sport, their ingenuity has been greatly exercised in inventing whatever would inflict the keenest sensations, and thus an appropriate technical phraseology has been formed, composed of all those cunning instruments of torture, which are regularly drawn forth whenever an unlucky author is to be flayed, roasted, or impaled. These are often employed, too,

without even premising a soothing anodyne to deaden the sensibility of the victim, as is practised by the most merciful of those, who experiment upon the physical nature of one class of animals for the intellectual advantage of another. We question, however, whether the Neros of criticism have exerted the most paralyzing influence upon the spirit of literary enterprise. It is, indeed, a maxim in civil policy, that it were better that ten rogues should escape than that one innocent man should suffer. It is not so, however, in the literary community. Here merit may indeed be trampled upon, and its efforts for a time repressed; but, although, when combined with a morbid degree of sensibility, it may be sometimes struck to the heart, in most instances, these malicious goadings are but the stimuli, which rouse its intellectual prowess. The mistaken clemency and careless dispensing of common-place praise are faults, which permit the unworthy to pass on, or even subserve to their preferment, and, although less odious, are those which extinguish the very soul of ambition. He that withholds the merited reward of literary fame, injures only one, but he, who purloins from the rich treasure to bestow it upon folly, wrongs the whole community. Genius drops her hands in despair, when she sees that which was the object of all her hopes and fears, degraded into a toy by being conferred upon the undeserving. To works of merit the encomiums of reviewers are not often necessary. The discerning part of the community, under ordinary circumstances, soon assign to them their proper character. In some cases, however, the reluctance with which opinions are received that are counter to those principles, which form a part of every one's education, and the influence which, particularly in the medical profession, individual and party interests exert, often render it the duty of the impartial reviewer to expose the principles of a work, and to exhibit them in such a light as shall favour a fair and candid scrutiny. Whether or not these circumstances render it *necessary* that this should be done, it is always a pleasing task to contribute to the early diffusion of truth, and to give to the public a fore-

taste which shall render them the more desirous of partaking from the original source.

Books, which are of an ambiguous character, and in which truth is often a passport to error, or error an obstacle to truth, are also to be critically unravelled; "they are of a mingled yarn, good and ill together; their virtues would be proud if their faults whipped them not; and their crimes would despair, if they were not cherished by their virtues." It is not often the unpleasant duty of a reviewer, however, to analyse a work, which exhibits but one tissue of faults, and yet there are cases, in which he can only acquit himself of the responsibility that rests upon him, by unreservedly uttering the whole truth, let the result be what it may. The authors of such books are of two kinds. There are those whose slumber of ignorance has been visited with flattering dreams of literary fame, and who, being possessed of a degree of native modesty, hesitatingly, with a trembling hand and averted eyes, slip their productions before the public. We could not find in our hearts to touch rudely the meek and tender spirit of such an author as this. We are so much of the order of mercy, that we would rather take a pinch of snuff from his horn box and permit him to pass on, knowing that there is room enough in the world both for him and us, and confident that humanity will drop upon his errors a tear of oblivious compassion. But observe the other class, they come before us frantic with anticipated honours, their confident brows carelessly bound with wreaths of their own weaving, insulting the understandings of those who cannot discern their merits, and compelling others to echo their self applause. The garrulous importunity, with which such demand literary fame, is as different from the intense and silent ambition of true genius, as the impatience of a spoiled child, who cries for the moon, is different from the sublime serenity, with which Newton contemplated the revolving sphere. There is no other way to relieve the community of their annoyance but to *whip them.*

We have not made the above remarks with the intention of biassing our readers for or against the work which we are to examine. The justness of them, as *generally* applied, we think will not be questioned, nor will it be denied that they might with equal propriety precede a favourable or an unfavourable review. If the character of the book be found such as to make an unfavourable application of them to itself, it is not our fault but that of the author.

The above work was announced some time previous to its appearance in two copious advertisements, one in English, the other in Latin, in which double form the work itself was also to appear. From this novel circumstance we may fairly infer, that the author would not merely address himself to the humble readers of English, but to the whole scientific world, of which the Latin language is the common bond and medium of communication. To correspond to so magnificent a ceremonial of annunciation, this should be of the royal family of books; and in glancing our eyes over the first pages, we gain other evidence of the importance of its contents. We are there told that it contains important discoveries, which directly resulted from "the mode of teaching anatomy by pure analysis," which the author informs us "it was his happiness first to introduce and establish by the fairest experiments," and which "is the only method which can free us from the trammels of long reigning prejudice or the dominion of ancient errors." On another page he says, "I am sure of receiving the grateful applause of every unprejudiced student, for having in this part of the science substituted simplicity for complexity, and regularity for confusion." In the next sentence, we are relieved of a little envious apprehension, by the candid acknowledgment that he has not wholly exhausted the subject, but "that other investigators may make such discoveries as will entitle them to *correct* and *modify some* of the *details* herein advanced." Again he says, "we ask no man to vouch for the truth of what is herein advanced, we wish all to examine and their testimony *will* be favourable."

Finally, in the spirit of Harvey and other investigators, he expresses his confidence in the imperishability of his discoveries, and says, "we wait patiently, convinced that time fixes every thing in its place," a most notable truth, and one which is not mal-apropos. Happy those authors who can thus confidently anticipate the rich feast of the world's applause, and happy those ministering critics, "Qui dapibus mensas onerent et pocula ponent," and who may be permitted at least to inhale their sweet savor! We trust that, in this instance we shall not be compelled "*malis absumere mensas.*"

The extracts which we have made above are merely flattering pledges, and if honourably redeemed, will fix the reputation of our author on a footing with that of Harvey, Hunter, and Bichat; for the genius which effects so great a revolution in science, as to free us from the "trammels of long reigning prejudice," is not the luminary of every generation. It completes its revolutions only at long intervals, to dispel intellectual darkness, and to mark the eras of mental progression.—If the contents of the volume are what the author thus leads us to suppose, little need we care for the sneering contempt with which the Edinburgh reviewers may be supposed to notice an American work, which makes its first appearance in two languages, perhaps, insultingly calling it a bilingual whelp, or giving it some other opprobrious epithet, in their usual scurrilous way. In vindication of our author we declare, that, if this *is* the "*only method* which can *free* us from the trammels of long reigning prejudice," we could wish for the honour of our country that he had published a polyglot of his researches, or had even translated them, not only into the learned languages, but into Adelung's twelve hundred aboriginal languages of America, the sooner to "free the world from the dominion of ancient errors."

But let us proceed to inquire what this new method may be, which here presents us with its first fruits, and which is to work such revolutions in science. It is developed in the introduction, and lest we should be thought not to compre-

hend every part of it, we here extract, for the satisfaction of our readers, every thing relating to it.

"By this method the *teacher* is always placed in the condition of a *learner*, and no authority is accredited but *demonstration*—no book is valued until its descriptions have been tested by a rigid scrutiny, in direct comparison with the structure as fairly exposed, and competently observed. This appeal from *books* and *authorities* to *nature*, disperses the clouds which have too long involved the science of Anatomy—removes the difficulties that have impeded the advances of the inquiring student, and opens the way to improvement, discovery, and truth. In order to satisfy such as may not have read the exposition of this method, which was published a few months since, the following extract may be advantageously presented.

"In consequence of a careful investigation of the modes of teaching anatomy, I have been induced to resort solely to the method of *Analysis* or decomposition. The subject is placed before the learner *untouched;* the knife is not used to clear obstructions from the way of the teacher, *previous* to the lecture. The STUDENT *sees* the relation of parts—the *Anatomy*, as it is left by the hand of nature: he observes the manner in which they are to be successively removed—he sees the situation and company with which they are always to be found, and perceives that in this mode of examination there are no difficulties to impede his progress, but inattention and neglect. The body is *decomposed* by the knife in his sight, and he soon acquires a clearness of information on the connexion of parts existing in the living system, which enables him at any moment to recollect what is to be encountered in any portion of the frame. The physiology he learns does not consist of a collection of scraps and fragments relative to each part separated, but it is the *whole* that can be learned, from *the whole* in combination. Should the teacher even be inadequate to the task of *telling* him *all* that is necessary, yet as the student *sees* the veritable anatomy for himself, his subsequent reading is always aided by recollecting the *actual condition* of the structure.

"In fact we believe no cause has acted more powerfully in retarding the advancement of the science of medicine, than the injudicious mode of teaching anatomy *synthetically*. In this way, we can easily account for the limited and unphilosophical views of physiology and pathology which have been given to the world. One teacher acquires a habit of paying an exclusive

attention to the nerves, and all his views are *nervous*—another scrutinizes the arteries, and all the theories he forms are *inflammatory;* a third studies the veins, and *congestions* and *engorgements* are the night-mares that oppress him; a fourth pours over the absorbents, and he is in continual dread, lest the balance of the system should be destroyed; a fifth looks entirely to the muscles and his mind can perceive nothing but alternations, of laxity and tension, of tonic and clonic contractions, of debility and spasm!"

——"In teaching anatomy by the analytic method, the teacher has not so good an opportunity of making the parts *look beautiful* as in the ordinary modes of instruction. He must of necessity show the structure exactly as it is; and must be content with the advantages his class receives from correctly understanding the subject. While learning the relation of parts, the class is in general too usefully and agreeably employed, to think of the *sights* they might have, were the lecturer at liberty to prepare them before hand, at the trifling expense of destroying a few fasciæ, arteries, veins, nerves, tendons or muscles! It is true, that in this mode of teaching, the lecturer will find it no easy task to commit a lesson *to memory*, and he may occasionally err in his descriptions; yet as he opens the faultless volume of nature *before the eyes* of his class, an error in *his* speech does not place a veil over their sight; nor does an inaccuracy in his detail, produce any inaccuracy in their preceptions."*

"The discoveries now announced are the immediate fruits of the adoption of this method of teaching, and their importance may be gathered from a consideration of the following particulars. The fasciæ of the human body have heretofore been considered very numerous, and in a great degree independent of each other. One fascia has frequently been described under many different names. By these researches all the fasciæ have been reduced to *three, all* of which are fairly continuous at certain points. We show that all the fasciæ heretofore described, (with the exception of the temporal, palmar and plantar aponeuroses) are offsets or processes from these three fasciæ. The first and most striking advantage is the simplification of what has till now been unnecessarily esteemed complex. By explaining the connexion of the processes with the parent fasciæ, and pointing out their relations with the different structures, we are enabled to form a

* See the Introductory Lecture on "Analytic Anatomy," published by the class, Feb. 1824.

clearer idea of the natural and morbid condition of the parts; this is an advantage only to be appreciated by those who know how miserably inaccurate the ordinary conclusions relative to functions are, when drawn from the knowledge of the structure, obtained in the usual *synthetic* manner."

And can it be, then, that *this* is the mighty intellectual engine, which is thus brought forward, we will venture to assert, with five times the pomp and pretension which ushered in the Baconian philosophy? Does our author really mean, that this original and analytic method is nothing more than what every student has practised, who has entered the dissecting room, with his scalpel in one hand and the London Dissector in the other? or are the overwhelming discoveries intended exclusively for the learned, and hence locked up in the Latin edition, where

> "Illi indignantes, magno cum murmure montis,
> Circum claustra fremunt.————————
> Ni faciat maria ac terras coelumque profundum,
> Quippe ferunt rapidi secum verrantque per auras."

So far as we can extract any meaning from these pages of our author, they tell us, that this new method is the demonstration of the constituent organs of the human frame, precisely in the natural order in which they occur from the surface toward the centre, and that, not by dividing them into systems, which would in this method be impracticable, but into sections, in which portions of all the organs are exhibited in their relative connection with each other. Thus, the integuments of a particular region are removed, and the fasciæ, the branches of arteries, veins, nerves, &c. are shown as they occur.

Now let the student, who may never have heard of our investigator's discoveries, call to mind his first essay in the dissecting room, and he will need no further description of this matter. Mr. Bell's dissections and the London Dissector have lead him precisely through the same course, and that without his having suspected that he was practising *analytic anatomy*, as the person who found to his astonishment that

he had been all his life speaking prose. In his dissection of the abdomen, he will recollect that he first exposed the fasciæ, then the muscles, next the peritoneum, the abdominal viscera, the arteries, veins, nerves, ducts, and whatever else occurs in this interesting association of organs. This is the uniform mode, which is profitably pursued by students in all dissecting rooms, after they have required some knowledge of the general distribution and uses of the organs. The pompous assumption, then, of this mode of teaching, as an original and important discovery, is—let the candid reader say what. The application of it to public lecturing is equally absurd.

Probably the author is in the practice of lecturing to those who are already somewhat acquainted with the subject, and if so, he will find himself the less perplexed in his favourite course. It is the duty of teachers generally, however, to presume their audience wholly ignorant of the science, and to lead them on from its first rudiments. It is easy to conceive of the perplexity and confusion, which would result from the employment of this mode of teaching anatomy to beginners. The teacher must necessarily commence abruptly with displaying a filament of a nerve, a branch of an artery or vein, a portion of a muscle, wherever they might happen to be associated. This would surely set at defiance all anatomical and physiological arrangement, for we know that a clear method is the very soul of science, and is suggested by nature herself. What idea would the student be able to form of the general structure and offices of the nervous system, who were to see it thus displayed by piece-meal? or how much of the distribution of the blood-vessels would he bear in mind, from having seen here a branch and there a branch? or of the origin, insertion and offices of the muscles, without a knowledge of the bony apparatus, to which they are attached, and to the motions of which they are subservient? It would be more difficult to arrange facts acquired in this way, in any intelligible order, than to render legible the sybilline leaves.

The author proceeds upon the presumption, that the great object of anatomical science is to determine the precise relative locality of parts of organs in different sections of the system. This is, indeed, important, particularly to surgeons, ought not to be neglected, and may be a considerable part of the art of anatomy, but it is not the science, in which our object should be to display the integral systems, and constantly to impress upon the mind the grand physiological relations which they bear to each other.

The investigator frequently speaks of *synthetic* anatomy, in contradistinction to his own *analytic*. We believe, to do the author justice, that we have some obscure idea of what he means, but to do equal justice to English and Greek, the idea and the expression are singularly out of joint. The ordinary mode of teaching anatomy is, surely, as much analytic as that employed by himself, the analysis being only conducted in a different manner. In the former, a degree of arrangement is observed, and whole systems are separated, (not composed,) and displayed successively. Indeed, were the investigator to translate his book into Greek, "ΜΕΛΕΤΗ ΤΟ ΠΑΝ· (to industry all things are possible,") he would discover that the words anatomy and analysis are almost synonymous, the former being generic, the latter specific.

From the time of Hippocrates, anatomy has been regarded as nothing else but the analysis of the human frame. The author's synthetic anatomy, then, changing the terms of the equation, but preserving its value, is the *synthetic analysis* of the human body. Indeed, we never had any conception of synthetic anatomy till we read Ewell's Chemistry, in which, from the rapid advances which that science is making, we are flattered with the anticipation that we shall soon be able to chrystalize adult men. complete in all their organs.

Our author observes, that the *peculiar* excellence of his system, consists in subjecting every thing to the test of the knife; giving credit to nothing till it has been tested by observation; and in the teacher's being constantly placed in

the situation of a learner. So far from perceiving any thing original in this, we had supposed, in the simplicity of our hearts, that no other mode had ever been pursued, since the time of Galen, who imposed upon humanity the anatomy of monkies. What systems of anatomy are now used, which are not founded upon demonstration? or who attempts to teach anatomy, but by displaying the parts in their natural connexions? With regard to those minute structures, which are beyond the reach of our senses, anatomists do indeed continue to conjecture, nor can demonstration be so fully employed as could be wished in physiological researches, but who is so dull as at this time to presume to conjecture with regard to the structure or relative situation of a muscle, an artery, a nerve, or a fascia? We can not but be astonished at such absurd pretensions to originality.

Although the author presents us with an analytic variety in his investigations, yet he seems to be particularly occupied with the distribution of the fasciæ, a department which has of late engrossed much of the attention of anatomists, and in which, while a few important practical observations have been made, a thousand ephemeral discoveries have passed away like the early dew.

No term in anatomy is used with less precision than that of *fasciæ*, it being often applied to parts that are specifically different, in their structure and in their functions. The tendonous aponeuroses, and the accumulated laminæ of cellular tissue, are both thus denominated. By nature, however, they are sufficiently distinguished, and much perplexity must necessarily result from confounding them. The cellular tissue, we know to be one of the most general of the elementary textures, not, indeed, itself constituting a distinct system of organs, but serving as the primitive basis of the whole frame. It is not only the distinguishing and connecting medium between the different organs, but it is an important element of their organization, entering into their structure and connecting together the fibres, which constitute and characterize

them. Hence it is every where continuous, and may be traced through organs of different textures. Thus, we find the cellular tissue issuing from the interstices of the muscles, and from between the fibres of tendons and ligaments, and blending with that which is exterior to them. In denuding with the scalpel the tendonous expansion of the external abdominal muscle, who has not observed, that, as the dissection is continued from above downward, if the integuments be merely flayed off with the blade or handle of the knife, the investing loose fascia constantly accumulates upon the surface of the tendon; and that to expose this completely, it is necessary to divide with the edge of a keen knife, at each stroke, the laminæ which issue from the interstices of its fibres, and which are folded downward.

A cellular continuity may be traced between almost any two remote parts of the system, it being thus diffused through muscles, ligaments, tendonous expansions, &c. The tendonous aponeuroses, which are often called fasciæ, originate from muscular fibres, either on the surfaces of muscles as in the leg and arm, or continued from their extremities, as is partially the case with the fascia lata of the thigh. They sometimes terminate in a definite insertion, and sometimes they are lost in the cellular web, which is continued from their interstices; but they retain every where their distinct character, and their fibres are no where found gradually degenerating into cellular texture. Sometimes, indeed, a few tendonous threads can be discerned in a cellular fascia, giving it firmness and strength, but even then, their muscular origin can always be traced out.

Although the very name of fasciæ, as it is ordinarily used, is ominous of perplexity and confusion, we will not anticipate any thing so repulsive in our author, but proceed to give him a fair scrutiny.

The investigator has at considerable length described, what he denominates the *superficial* fascia. Every one knows that in addition to the subcutaneous cellular texture, the muscles are invested with a laminated tissue, which also

sending processes between and beneath them, cause each muscle to be enveloped in a proper sheath. Let us see what Bichat says upon this subject.

"The cellular texture is very abundant in the muscular system; I know of no system that has a greater proportion of it. This texture forms a very evident covering around each muscle. This covering is most commonly loose, filled with fat, easily distended with air in emphysema, and serum in anasarca. At other times it is more dense, compact, and really arranged like a membrane. Such, for example, is the case with that which covers the great oblique muscle of the abdomen, and the dissection of which on this account, students at first find very difficult. The other abdominal muscles, the trapezius, the serratus major, and the great dorsal, exhibit also this arrangement. We might say that in this way nature compensated for the aponeuroses, which are wanting on the broad muscles of the trunk. Besides, this covering has only a membranous appearance; it has nothing of its organization, it disappears in the infiltration in which all the true membranes remain."

Wherever muscles are elevated above the common surface, this covering is, for obvious purposes, stronger and more distinct, as is the case with the sartorius, the sterno-cleido-mastoideus, &c. This structure, which of course covers the whole muscular surface, and all the superficial organs, is that which the investigator has named and adopted. We have always supposed it the duty of every anatomist, in teaching, to point out the variations in density and volume, which occur in different parts of this expansion, as well as those peculiar arrangements which are important to the surgeon, and we believe that it is pretty uniformly done. We ourselves have at least *attempted* it, although we have had the misfortune to be somewhat insolated from the profession, and certainly did not take the hint from Dr. G. To describe a distinct superficial fascia, however, the different parts of which all originate from a certain central portion, continued here and produced there, as the nerves emanate from the brain, and the arteries from the heart, is calculated to convey erroneous ideas

of this structure, which might as well be said to originate from beneath the muscles as from above them. Indeed it is every where diffused, and has no obvious centre or starting point. This, however, is the course pursued by our author, to the justness of which remark he shall himself bear testimony.

"The fibrous" (fibrous?) "membrane which covers the whole of the trunk, and a very considerable part of the extremities of the body, is one of the really important and perfectly simple structures, which has been made difficult, solely by considering it in fragments, and describing those with most tedious minuteness—though without any compensating clearness of arrangement, or accuracy of detail. With a hope of exhibiting this part of anatomy more advantageously to the student, and of removing some of the obstacles before mentioned, these investigations are begun—and should the effort be followed by any success, the author will be encouraged to extend his attention to other parts of equal importance, which hitherto have been offered to the learner under a similar veil.

"By making a crucial incision through the integuments of the abdomen, from the ensiform cartilage to the pubis, and from the crest of one ileum to the other, going no deeper than the loose cellular substance, we may reflect the integuments on all sides, so as to leave the *fascia superficialis* untouched. If we then lightly make another crucial incision, we divide the *fascia superficialis*, and encounter a layer of cellular substance, more delicate than that which lies between the integument and fascia, yet in general very distinctly perceptible. By dissecting cautiously, the fascia may be reflected in every direction, though it can be done with more ease where it lies over the tendon, than where it covers the muscular fibre.

"Let us first examine the inferior part, which we shall find descending towards the top of the thigh, slightly connected by the intervening cellular texture to the tendons of the abdominal muscles, until it reaches Poupart's ligament, to the external or iliac portion of which it is more closely attached. As we approach the os pubis, near which it covers the spermatic ring and cord, the handle of the knife may be used to separate it from the tendons—and by looking under the fascia, when thus raised, without reflecting it, we obtain the fairest view of the real character and situation of the

spermatic cord. The fascia receives a very considerable thickening near the pubes from the lamina of cellular substance exterior to it—and it is continued over the corpora cavernosa penis, as well as sends down a strong sheet into the scrotum, which has received the name of Camper's ligament. This portion descends obliquely in the direction of the cord, which it covers, and of the testicle, which it surrounds. The external portion passes downwards, over the whole of Poupart's ligament, to the upper part of the thigh, lying immediately under the integuments, and over the cluster of lymphatic glands and vessels, which fill up the depression below Poupart's ligament. As it approaches the top of the thigh, it gradually becomes thinner, and loses its regularity of texture, verging to the appearance of common cellular tissue: it may still be traced some distance down the inner part of the thigh, until it is lost in common cellular texture, lying in contact with the fascia lata and integuments. We may next raise the fascia superficialis from over the crest of the ileum, and pursue it backwards to the spine, and we may follow it downwards covering the whole of the *gluteal* muscles, where it is strengthened by large additions of cellular texture. As we approach the tubera ischii, the fascia becomes more closely attached to the surface, and in many instances seems to terminate there. This, however, is not the case, as it may be followed across covering the whole of the perineum, forming the strong fascia, which presents to the knife immediately after the first incision in lithotomy. We trace it from the perineum upward, until we lose it on the under surface of the penis, where it mingles with the covering which this organ derives from the anterior part of the fascia.

"Returning to the central part of the abdomen, we prosecute our dissection upwards. We raise the fascia superficialis from the tendonous sheath of the rectus with facility, but find it so closely adherent to the proper coat of the muscular fibre, as to require some care for its separation. This, however, may be effected with comparative ease, and we lift it from over the lower part of the sternum and pectoral muscle, and from the superior part of the external oblique. We trace the fascia with great facility towards the spine, and find it giving a strong covering to the muscles of the back.

"When we raise the anterior part to within a hand's breadth of the clavicle, we see the *platisma myoides* is on the outside of the fascia, and in immediate contact with the integuments, stretching obliquely upwards to the angle of

the jaw, its anterior fibres ascending to the angle of the mouth, and the posterior in many instances rising to the zygoma, and connecting itself with the outer part of the orbicularis oculi.

"Having removed the *platysma* carefully, we then obtain a view of the superficial fascia covering the whole of the neck, ascending in front to the edge of the chin, where it is lost in cellular and muscular substance. As we pass towards the angle of the jaw, we find it rising higher, (though thin,) covering the masseter muscle, attaching itself to the zygoma with firmness, and extending towards the ear, so as entirely to overlay the parotid gland, and prevent us from obtaining any distinct idea of its precise figure. From the back and upper part of the zygoma we see it passing up on the outside of the temporal fascia, and including in its substance the *anterior auris* and *attollens aurem*. The portion covering the shoulders and back of the neck continues over the occipital belly of the occipito-frontalis, and may be traced over this muscle, and continuous with the lateral portion until the muscle becomes united with the scalp."

We perceive that the author denominates his *fascia superficialis* a "fibrous membrane," from which we are positively compelled to infer, that he gives this name to the cellular tissue, which we have mentioned above, or, that he confounds this last with the tendonous coverings with which the muscles are often invested, and the fibrous expansions by which certain parts are strengthened.

In tracing the above fascia, the author developes one of his most important discoveries.

"Thus the sterno-cleido-mastoideus is enclosed in a distinct sheath, the same fascia forming both the deep and superficial covering of the neck. This part of anatomy, although it may have been *known*, has never been described with precision, and I may claim the merit of a discovery with much less danger of losing my title than has occurred in the case of others."

The discovery is, then, that the sterno-cleido-mastoideus, like every other muscle, has a proper sheath of cellular tissue, which we can inform him is the more dense and obvious,

because it is not enveloped by other muscles. "Even Colles (he continues) with all his minuteness has not attended to this beautiful arrangement." Neither has Colles, with all his minuteness, any where stated, *that man has precisely two ears.*

The pathological remarks which follow are meagre in the extreme, obviously the result of limited practical observation, and wrought in for the purpose of magnifying the importance of the above *discoveries.*

We proceed, however, to the more important points to which the author so confidently challenges our attention; trusting that he will soon rescue himself from the perplexities in which he seems to be involved, and give us an opportunity to redeem ourselves from the imputation of cavilling and carping at every thing with which we meet.

At the head of Section III. we find: "Formation of the pericardium from the fascia superficialis." Here we have an observation which is unquestionably original. In behalf of our author, we defy the book worms of ancient literature to produce, from Greek, Latin, or Arabic lore, a single sentence which can be interpreted to render in the least equivocal his title to this *original absurdity,* which we think he is in much less danger of losing "than has occurred in the case of others." In saying that the pericardium is formed from the fascia, he does not mean that the cellular tissue of the surface is merely continuous with that of the pericardium, for this was known even to us, and surely is not a discovery; no, he evidently means that the pericardium is generated by, or grows out of the above fascia. But does he recollect that the fibrous capsule of the heart and the superficial fascia are of structures as entirely different as those of the bones and muscles? What says Bichat on this subject? "All these membranes have, as a common basis, a fibre of a peculiar nature, hard, elastic, insensible, little contractile, not resolvable by maceration, as Haller has said, into cellular tissue." To render it in the least plausible that this membrane forms the peri-

cardium, it is necessary that we should prove physiologically, that the cellular tissue is capable of generating the fibrous membranes, a proposition which is so far from being self-evident that it appears to us to be absurd in the extreme. Does he attempt to establish it? No, he merely points out a cellular (not a fibrous) continuity between them, and infers from it, as his discovery, that the one forms the other. Should this, however, notwithstanding all our logic, be adopted as a discovery, we will lose no time in entering our claims to one of our own, which, however, is not altogether original, because it was suggested by the above. It is this, that the thumb nails form, generate and produce, not only the whole cuticle that covers the body, but also the epithelium, which by some anatomists is supposed to invest the whole free surface of the mucous membranes. Let all, who admit the discovery of the investigator, examine for themselves "and their testimony *will* be favourable."

Our author observes that "However singular it may appear that this arrangement should not have been discovered until this time, it is by no means as singular, as that anatomists during so long a time should have remained contented to believe that a *serous* membrane like the PLEURA, could form a strong FIBROUS membrane like the PERICARDIUM."

And who of any note has ever asserted, or conjectured, that the pleura forms the pericardium? Such a presumption would be equally as absurd and unnecessary as his own. He seems to be lead by his ignis fatuus of analytic anatomy, to the belief that each part of the system must be generated by, or grow out of some other part with which it is continuous, and not that there is a simultaneous organization of the different textures, resulting from the peculiar action with which the God of nature has endued the vessels of each part.

Let us see what is said by the standard authors upon the continuity of parts. In volume III. p. 67, Bichat observes:

"This manner of describing the course of the mucous sur-

faces, by saying that they are elongated, dip down, penetrate, &c. from one cavity to another, is no doubt not conformable to the progress of nature, which creates in each organ the membranes belonging to this organ, and does not thus extend them by degrees; but our manner of understanding it is better adapted to this language, the meaning of which the least reflection will show.

Again, "The word origin should only be understood in relation to anatomical arrangement. In fact, the nerves are formed at the same time as the brain; they are rather organs of communication with this viscus, than elongations of it. If we take a view of the functions of one part of the nervous system, we shall see that the termination is at the brain, and the origin is upon the surface. Is it not said that the nerves go towards this or that part, that the arteries take this course, wind about, &c.? These are only metaphorical expressions, the least reflection will determine their meaning."

Bostock also remarks, that these expressions are only to be understood in a physiological sense. If, then, this language is not used by these authors in relation to the nerves, arteries or parts of the same membrane, without such qualification, what nonsense, inconsistency and absurdity would it not be in them to assert that the pleura, a serous membrane, one of the elementary textures, *forms* the capsule of the heart, a fibrous membrane, also of a peculiar and independent structure? We believe that, were such opinions to be generally attributed to the illustrious dead, their canonized bones would burst their cerements.

In what our author has said with regard to the femoral and brachial fasciæ, we find a confused and inexplicable account of what never can, and never need be minutely described, viz. the cellular tissue, as it is every where diffused between and around the muscles, blood-vessels, nerves, &c. We are confident that a hundred different persons might attempt this task and each one would come out with a different account of it. A general description, indeed, is the only one which can convey any idea of it, for surely no one would think to describe intelligibly a piece of net-work, for instance, by tracing

the thread, of which it is wrought, through all its perplexities.

Our author again demands our admiration upon his discovery of that, to be ignorant of which, would argue us destitute of the first principles of anatomy, viz. that the cellular tissue is connected with the ligaments of the shoulder and hip. But if he means that the fibrous aponeuroses are continuous with the fibrous capsules of these joints, and claims it as a discovery, we refer him to Bichat.

"Though the numerous organs which enter into this classification, belong to very different apparatus, though they seem to be spread here and there in the economy, without holding together at all, and though all appear insulated, yet they are almost all continuous and connected; so that we may consider the fibrous system, like the vascular and cerebral nervous systems, that is to say, as having a common centre, from which all the different organs go that form its divisions."

We will conclude our observations on this part of the investigations, by inquiring of our author, what may be the drift of these discoveries relative to the pericardium, the ligaments of the joints, &c. granting all the anatomical importance which he demands for them. What physiological or pathological inferences follow? of what value are the observations to the physiologist, the physician or the surgeon?

The investigator's Sec. VII. on irregularities of structure, appears to have been got up for the purpose of ushering in, in the most dignified manner, another discovery, viz. that of a small muscle of the thyroid gland. It may be regarded as the *currus triumphalis* of this little stranger. If, however, our own observation and that of a friend, on whose acumen we rely with confidence, deceive us not, this is nothing more than a few fibres of those muscles, which always cover this gland, blending with its investing fascia.

The chapter on morbid anatomy we regard as far the most valuable part of the investigations, although of minor conse-

quence in the estimation of our author, who apparently introduces it for the purpose of eking out the volume. We are under obligations to every one, who adds to the stock of data which constitute the wealth of our profession. We cannot think, however, that the number or importance of his morbid phenomena are sufficient to stamp the character of utility upon the volume of which it forms so small a part.

On turning to Section IX. the first object that strikes our astonished sight is a picture, which every one, who has seen the book, will distinctly remember. We profess none of that squeamish delicacy, which revolts at any thing that the interests of science may require. There are very few *professional* books, however, in which it is thought necessary to introduce representations of this extraordinary character, and when they do occur, they are at least accompanied with the silent apology of utility. We regret to say that, in this instance, we can find no such palliating circumstance. He does, indeed, observe that some sceptic had doubted, upon what grounds we know not, the existence of the hymen, but, surely, the profession would have been satisfied with his testimony that it had occurred three times in his dissecting rooms.

We have no doubt, however, that the above embellishment will render the book more valuable in the estimation of the groundlings, nay, that it will even poineer its way beyond the limits of the profession, "but it can not but offend the judicious, the censure of which one *ought* to o'er-weigh a whole theatre of others."

Section X. concludes the author's researches, and our unpleasant task. It contains an account of another discovery, viz. that of the vena azygos dorsalis. We confess that, from the foregoing disappointments, we could not but anticipate, in this seal-ring of our author's, some two-penny matter, as it really proves to be.

With the author's researches, however, his anatomical investigations do not terminate. We perceive that the same title,

which graces his own discoveries, is continued by the license of authors, in a most comprehensive sense, through fifty pages of an entirely different character and which give the book the body of a respectable octavo. He first investigates an anatomical table invented by Mr. Sellers, whose ingenuity in mechanical *investigations* we very much applaud. The anatomical investigations next embrace a translation of Scarpa on the minute anatomy of the bones. Did we feel ourselves qualified to make critical remarks upon the writings of this illustrious man, this, for obvious reasons, is not the occasion which would call them forth.

In vindication of the apparent severity of our strictures, we have only to say, that we have dealt with the writer of the volume in question only as an *author*, and in such a manner as the character of the book and the circumstances under which it has been brought forward, render necessary. We have been instigated by no personal pique nor prejudice, for the author is entirely unknown to us, except through the medium of his writings and to them we direct every discerning and candid reader for our best apology. To us they are a dreary waste, in which the restless and impatient eye wanders from page to page, unrefreshed by one blossom of genius or one verdant spot of fertile thought. Let every one, who would retort censure upon *us*, give the book "heedful note, and if its fault do not itself unkennel in one *page*, it is a *slanderous* ghost that we have seen, and our imaginations are as foul as Vulcan's stithy."

N. R. S.

ART. II.—*Das Venensystem in seinen Krankhaften Verhæltnissen, dargestellt von.* Dr. F. A. B. PUCHELT, Ausserordentlichem, Professor der Medicin an der der Universitæt Leipzig, &c. &c. Leipzig, 1818, 8vo. p. 405.

The venous system in its morbid relations, &c. &c.

THERE is no subject in practical medicine upon which inquiry and observation have been less active, than the one which forms the object of the present volume. Hodgson's work on the diseases of the arteries and veins, is a publication of considerable value, but it is confined almost exclusively to the surgical diseases of the sanguiferous system, or to such affections as depend on organic or structural derangement. Mr. Puchelt, who is evidently a man of extensive erudition, and of habits of close observation and research, has taken a much more comprehensive, and, in our opinion, philosophical view, of the morbid relations of the *venous* system. He endeavours to show throughout this work, that the veins have very extensive and important pathological relations,—that they are susceptible of morbid conditions, independent of organic or structural disease,—that in short, their vital properties, and consequently their functions may be so deranged as to become the *punctum saliens* of diseased action throughout the system.

In speaking of the *venous system*, the author understands both the containing and contained parts—the veins as well as their contents—and this aggregate of solids and fluids he calls *venosity*. This venosity, or in other words this aggregate of the solids and fluids of the venous system, may predominate too much, or it may exist in a state of morbid diminution. In the latter condition, there is a deficiency of venous blood; that is, the characteristic properties of the venous blood, as wellas its peculiar constituent principles, do not exist in due degree and proportion. In consequence of such a state of the blood, the veins will be less distended, and undergo less exertion; and therefore, according to a well known law of the

animal economy, the irritability of these vessels will be augmented at *first*, but afterwards undergo a gradual diminution, so that their action will be reduced, and the vessels themselves assume a contracted condition. This state of venous system occurs in dropsical, cachectic and chlorotic affections. The author thinks it exceedingly problematical, whether this "morbid venosity" can appear as an idiopathic affection. Unquestionably various diseases originally located in other parts, may both lessen the quantity, and reduce the characteristic properties of the venous blood, and it is most probably in all instances to be regarded as a secondary affection.

An "*increased venosity*," is perhaps still more common than the opposite state we have just mentioned. In what however does this "*increased venosity*" consist? According to the author, this condition depends immediately either on a superabundance of venous blood, or on a morbidly increased state of the characteristic properties of this blood. In relation to this latter circumstance it may be observed, that if it be true, as is maintained by physiologists, that the venous blood is characterized and distinguished from the arterial, by the predominance of carbon and hydrogen in the former, it is evident, that a blood which contains too great a relative proportion of these substances, possesses the peculiar properties of venous blood in too high a degree, and may give rise to various morbid states of the general system. If with geneneral *venous plethora*, the action of the veins and the function of respiration are performed with increased vigour, health will not be disturbed. But if this due relation between the quantity of the venous blood, and the vigour of the veins and of respiration is destroyed, disease must be the consequence. Thus if the quantity of blood conveyed to the lungs is great, and the function of respiration is imperfectly performed, then the venous blood will not undergo a sufficient change in the lungs, and it needs no argument to prove that an inadequately decarbonated blood will act injuriously on the organization in general. Our author thinks that this "*increased morbid*

venosity," is occasionally extended to the capillary system; though this occurrence is generally confined to the capillaries of some one part, these vessels becoming sometimes so altered as to acquire a venous character.

We have already stated that the author considers what he calls "*decreased venosity,*" as invariably a consequence of some other affection. With regard to the state opposite to this, namely, "increased venosity," he considers it as, usually, a primary morbid condition, and dependent frequently on causes that influence the system from without. The principal causes which contribute to this state of the venous system, are, according to our author, the following: diet, air, cold, heat, certain contagions, mechanical causes, exercise, the depressing passions, too much sleep, excessive venereal indulgence, or a total abstinence from it, suppression or cessation of the catamenia, and various diseases. The operation of these causes forms the subject of the third chapter; but as the author's observations on this head, do not appear to be essential to the exposition of his general and leading sentiments, in relation to the pathological conditions of the venous system, we omit entering into an account of his remarks on this part of his subject.

In a state of inordinately *exalted venosity*, there exists a want of harmony in the venous system itself, the moving power does not possess a due relation to the mass to be moved. In consequence of this state of things, the venous circulation will not go on with regularity and uniformity through the various parts of the system, that is, the motion of the blood will be accelerated in one part, and morbidly retarded in another, and give rise to that state of local venous engorgement which is called *congestion.* We will not stop to inquire with our author, into the particular manner in which such congestions are produced; it is sufficient for our purpose to know that they do occur, and to state some of the prominent circumstances connected with, and predisposing to, this state of the venous circulation. The disposition to particular

determinations of the blood, varies in a striking and almost uniform manner, from infancy to old age. In infancy, and particularly during the period of dentition, the head is the part to which the blood is especially determined: at the age of puberty we find the determination directed upon the genital organs; in middle age the abdominal viscera become the part to which the blood is particularly determined, and in old age, it is again directed to the head. In proportion as the arterial or venous systems predominate, so will these congestions be of an arterial or venous character. In those parts especially, where the venous system is particularly developed, or in which it naturally predominates, the congestions, if any occur, are venous. It is thus that the abdominal viscera, are more generally in a state of venous engorgement than any other parts of the body. *Congestion*, according to our author, is always seated in the *capillary* system, and must be distinguished from the mere accumulation of blood in the trunks and large branches. Venous congestion is distinguished from arterial, by the former supervening in a slow and gradual manner, and by its being less apt than the latter to disturb the functions of the organs in which it occurs. It is also of much more protracted duration, and more frequently productive of chronic diseases than arterial congestions.

The symptoms, which indicate a morbid *accumulation* of blood in the *vena porta*, *cava*, in the right auricle and ventricle of the heart, and in the pulmonary artery, are anxiety, a sense of fulness and weight in the præcordia; disorder of the abdominal functions; dyspnoea, moderate palpitation, and he thinks, pulsation in the epigastrium. The author here introduces some observations on the pulsation of the veins. He refers to a case reported by *Steinbach*, in Hufeland's Journal, in which *venous pulsation* was very conspicuous. The person in whom it occurred, was labouring under remittent fever, and was also much troubled by hæmorrhoidal affections. During the paroxysm of the fever, all the superficial veins, even the smallest were seen to pulsate in a lively manner, and synchronously with the pulsation of the arteries.

Venous hæmorrhages.—The author divides venous hæmorrhages, into such as are the consequence of some mechanical injury or rupture, and such as occur without any obvious injury or opening. Of hæmorrhages, from the spontaneous opening or bursting of veins, he adduces a number of interesting examples from authors, as well as from his own experience. He agrees with Bichat, that the latter class of hæmorrhages, are to be ascribed to a sort of transudation, or exhalation of the blood, from the ordinary exhalents of the parts in which they occur. They are not, however, a *mere* transudation, or passage of the blood through the relaxed or debilitated capillaries. Like the natural exhalations of the body, they are the result of a secretory process, and this opinion is confirmed by the fact, that these hæmorrhages almost always occur from surfaces and organs of secretion. Such hæmorrhages are always attended or preceded by venous congestion in the part from which they proceed; and they almost invariably occur from parts situated below the diaphragm, and particularly from parts within the abdomen. The author considers the catamenia as a venous hæmorrhage.

Venous Inflammation.—It is not easy to draw a well defined line of distinction, between congestion and inflammation. The author contends, that the only difference between inflammation and congestion is, that in the former *all* the capillary vessels, of a part, are dilated and engorged, whereas in the latter, this condition occurs only partially; the majority of these vessels remaining in their natural state. In the former state, that is, when *all* the capillaries are affected in this manner, the functions of reproductive, and recrementitious secretion are suspended. In consequence of this state of things, the sensibility an irritability of the affected parts become morbidly increased, and give rise to the different phenomena characteristic of inflammation. According to this opinion then, congestion, or a general engorgement of the vessels, is always the first link in the chain of morbid circumstances, that lead on to inflammation. The true difference between

inflammation and congestion appears to us to be; that in the former there is connected with vascular engorgement, a morbid state of the vital properties of the capillaries; whereas in the latter, the sensibility and irritability of the congested vessels, remain in their natural state, and perform their natural functions, though perhaps in a less active manner.

That change of the capillary vessels, which constitutes inflammation; or, that congestion of these vessels which precedes, and is an essential circumstance of inflammation, may, according to the author, proceed either from the side of the arterial or venous branches,—that is, the congestion and consequent alteration of the vital properties may exist, either in the venous or arterial capillaries. There are, therefore, two kinds of inflammation, the *venous* and *arterial.* The characteristic circumstances of the former variety of inflammation, are, according to the author, the following:—1. Venous inflammation appears most commonly in those parts, in which the venous system predominates over the arterial. This is particularly the case with the liver; in the spleen, and even in the lungs. This variety of inflammation is also apt to occur in the mucous and serous membranes. The author thinks that the inflammation of the brain in hydrocephalous is of the venous kind:—2. Venous inflammation arises from the influence of causes, that have a tendency to favour the increase of the quantity and peculiar character of the venous blood. This kind of inflammation, is also more particularly observed to occur in individuals, in whom other symptoms of an increased "venosity" manifest themselves, such as hæmorrhoidal affections, &c.—3. The progress of venous, is in general more slow than that of arterial inflammation:—4. In relation to the individual symptoms, it may be observed, that the pain of venous inflammation is often very trifling, and in some cases entirely absent. This is not only the case in inflammation of the venous trunks themselves, but also in venous inflammation of other organs; as in pneumonia, the pain is not acute and piercing, but dull and heavy; the colour of the affected part is

darker, and the swelling much greater than in arterial inflammation; generally, the function of the organ, affected with venous inflammation, is exceedingly deranged. In venous pneumonia for instance, in which scarcely any pain is experienced, the respiration is generally extremely laborious and anxious. In inflammation of the veins the pulse is almost always frequent, small, somewhat tense, often irregular.. In venous inflammation of other organs, the pulse is less frequent, but always small and rather tense.

The author in the next place, gives an account of seven cases, of what he considers inflammation of the *vena cava.* Of these we shall select only the following case.

"Mrs. P. aged fifty-seven, of choleric temperament, and of an atrabilious appearance, was, in the summer of 1816, suddenly seized with complete syncope; from which, however, she soon recovered, and remained in apparent good health, until February 1817, when she contracted a cough, which was regarded as catarrhal. Expectorant remedies were prescribed; but the cough grew worse from day to day; acquired a spasmodic character, and was particularly aggravated by ascending stairs, even of a few steps. She experienced no particular pain or uneasiness, except what was created by the cough. On the morning of the 7th of March, she was suddenly seized with a chill throughout the whole body; which was followed by considerable fever, accompanied with pain in the right side of the thorax. In the afternoon Dr. P. found her skin moist and warm, the pulse frequent, irritated and somewhat hard; respiration was hurried but not oppressed, or attended with feelings of anxiety and distress. The disease was now viewed as a case of pleurisy, and remedies were directed conformably to this diagnosis. On the eighth day, the pain in the side had entirely disappeared; but the pulse as well as the respiration remained extremely frequent; the cough was not attended with any expectoration. She was now bled to the extent of *six ounces;* the blood was covered with a thick layer of size. The extreme frequency of the pulse and respiration, as well as the dry cough, continued without any perceptible change until the tenth. A laxative deobstruent mixture was now administered, and on the eleventh, as she passed a very copious stool of black matter, she suddenly sunk into an alarming state of syncopy, from which she recovered slowly.

When Dr. P. came to her, she had recovered her consciousness; but he found her much prostrated, with a very small and frequent pulse, and a pale and shrunken appearance of the countenance. Epespasties were applied to the legs, and liquor ammonia was administered in small doses. The unfavourable character of the pulse and respiration, just mentioned, continued without alteration; she became restless, without, however, suffering the least pain or anxiety of feeling. This state of things gradually assumed a more alarming character, until the twelfth, when she died suddenly, having been perfectly sensible to within a few minutes of death. On autopsic examination, the following appearances were noticed: The body was well nourished; the muscles were of an unusually dark colour; the abdomen was tumid, the chest contracted. On opening the thorax the lungs were forcibly protruded; the right lung adhered to the pleura; the appearance of this viscus was natural; a red, frothy fluid was copiously discharged from incisions made into its substance; the heart was sound, but appeared unusually flaccid. But the *vena cava inferior*, was dilated to two inches in diameter, as far down as the diaphragm; its sides were very white and as thick as those of the aorta. In this dilated portion, there was a polypus of the size of a "large nut," whose pedicle extended up to the right auricle; the liver was of considerable size, but appeared sound, nor was there any morbid appearance discoverable in the intestinal tube."

It may be doubted, however, whether this case can be properly given as an example of inflammation of the vena cava. Frank and Kreysig, mention an uncommonly frequent pulse and hurried respiration, as symptoms of venous inflammation, but these phenomena are so frequently observed in other affections, that no reliance can be placed on them, as diagnostic signs in the present case. It must nevertheless be confessed, that the thickened sides of the dilated portion of the vein, and the polypus, give some probability to the idea, that there existed inflammation in the affected part.

We omit noticing the other cases detailed by our author, for they appear to us, to be even more equivocal as examples of venous inflammation, than the foregoing case. Having given the result of his own experience upon this subject, Mr.

P. proceeds to relate cases of venous inflammation, on the authority of other writers.

*Meckle** attended a woman, who after a premature labour, was attacked with fever and pain in the pelvis. The pain evidently depended on inflammation, and after a good deal of suffering she died. On dissection, an abscess was found between the uterus and rectum, the omentum adhered to the right ovarium and tube. The veins of the uterus and the spermatic vein were turgid; their sides were considerably thickened, and they contained a large quantity of pure pus; the vena cava, in the neighbourhood of the right kidney too, was found to contain pus in considerable quantity, as well as a large polypus.

Reil† mentions a similar case. He found the right renal vein, and a large portion of the vena cava inflamed, red, swollen, and filled throughout with a plug of fibrous bloody substance, containing a fluid resembling pus in its centre.

A woman aged thirty, was delivered with much difficulty, of a large healthy child. Very considerable hæmorrhage followed the expulsion of the child. On the third day she was attacked with strong fever and pain, in the region of the uterus, which gradually extended throughout the whole abdomen. On the fourth day after this attack the fever subsided; but the pain continued for a week longer. At this time the milk in the breasts disappeared entirely. In the third week after delivery, she became affected with remittent bilious fever, which in the course of two weeks assumed an intermittent form; and this finally terminated in hectic fever, attended with a puruloid expectoration, and pain in the region of the liver, and, at last, in the left hip and groin. On dissection, the *crural vein was found as white, hard, and*

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* Sasse. G. Guil. de vasorum sanguiferorum inflammatione. Hal. 1795, p. 45.

† Ueber die Erkentniss und kur der fieber. 2 ter. Bd. (Halle, 1804.) S. 329.

compact as an artery; this was particularly observable where it passes under Poupart's ligament, and its cavity contained blood, mixed with a large portion of pus. On being carefully washed, the inner membrane was found to be looser than common, and covered with an artificial or inflammatory membrane, which easily separated in large pieces. The valves were thickened, and some had a lacerated and dark red appearance.*

Clark† mentions several instances in which he found the veins of the uterus filled with pus, in women who had died of puerperal fever. *Wilson*‡ saw the sides of the larger veins of the uterus thickened, so as to have their cavities entirely obliterated in some parts. The iliac veins also, with their larger branches were much thickened, and the membranes of the cava, were at least three times thicker than in a natural state, and contained upwards of four ounces of pus, which was prevented from reaching the heart, partly by a contraction of the *cava*, just below the opening of the hepatic vein, and partly by a mass of pseudo membrane and lymph, that plugged up this contracted portion.

The author next speaks of inflammation of the veins from external injuries, and particularly from bleeding. The dangerous consequences of accidents of this kind, are now well understood. Indeed, it seems to be generally admitted, that venous inflammation, is a much more dangerous affection than inflammations of the arteries. The author quotes a number of cases of this kind, but he adds nothing of consequence from his own observation.

We pass over our author's chapter on the "*Dilatation of the veins,*" as affording nothing of particular interest or value, either in a practical or pathological point of view. It is proper to state, however, that he considers *varix*, totally dis-

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* *Meckle.*

† Practical Essays on the Management of Pregnancy, p. 63. 72.

‡ Transact. of a Society for the Improv. of Med. Knowledge, vol. 3. p. 65.

tinct in the mode of its origin, seat, and character, from "mere dilatation of the veins." They differ, he says, in form, and in their seats. *Varices* are *globular* swellings; whereas dilatation of the veins, consist of cylindrical enlargements. Varices are always seated in the *smallest* venous branches, and even occasionally in the capillaries of this system; whilst dilatations occur in the trunks and larger branches. Finally, *varices* are generally attended with pain, which is never the case in mere dilatation. The pain of varix commonly spreads to the neighbouring part, which becomes redder and more swollen than in a healthy state; in dilatation this never occurs. From these circumstances the author infers, that the peculiar character of *varix* consists, in its being essentially dependent on inflammation of the veins; and without which it cannot occur. The pain and redness, which almost always are present, indicate the existence of inflammation, and to this also must we refer the pulsation, which persons affected with hæmorrhois, often experience in the extremity of the rectum.

According to *Chaussier*, these tumours always commence by a slight effusion of blood from a small vessel. These effusions, are either reabsorbed or they are increased,—the tumours increasing, and acquiring by degrees a peculiar organization. In old swellings of this kind, blood is often found in a fine membraneous capsule, in the centre of the tumour, the inner surface of which is smooth, villous, or spongy. No enlarged vessel is found to open into these capsules; the blood passes into them from the mouths of the smallest order of vessels, as may be demonstrated by fine injections. The cellular texture, which enters so largely into the composition of these tumours is, according to the opinion of Dupuytren and Cruveilhier, of precisely the same character, as that which is found in the *corpor: cavarnos, clitoris, and urethra.* Montégre thinks, that the capsule is formed by the dilatation of a capillary vein, and not by rupture and consequent effusion o. blood, from one of the smaller vessels.

Wounds and Ulcers of the veins.—Examples of suppura-

tion and ulceration, originating in the substance of the veins, and extending from within outwards are very rare. Morgagni saw the inner surface of the upper part of the *vena cava*, corroded by ulceration.* Portal found the pericardium of a woman filled with blood; the *cava* where it enters the right auricle, was in some parts much thickened, and in others unnaturally thin, with a considerable hole in it close to the auricle, with marks of ulceration on its inner surface.† A case similar to this one is recorded by Lancici.‡ Our author states, that there is in the anatomical museum of the university of Leipzig, a preparation of the abdominal cava, in which there are two holes of the size of a pea. The person from whom it was taken, died suddenly with convulsions and ice-cold extremities; a large coagulum of blood was found in the abdomen. The edges of the openings were tumid and smooth.

Obliteration and obstruction of the veins.—Obliteration of the veins, is almost always the result of inflammation. Baillie§ found the vena cava transformed into an impervious ligamentous substance, from the mouth of the renal veins to the right auricle. Albinus‖ also mentions a case in which the cava, near the iliac veins was entirely obliterated, and he states, that not the least unnatural effects were to be seen in the lower extremities, and in the pelvic viscera. Knape¶ saw a case in which the inferior *vena cava* was impervious, in consequence of thickening and adhesions of its sides, and yet the patient had been free from any symptoms indicative of disease, to within a very short time of his death.

The author quotes a number of similar cases, from various writers, which it would be entirely superfluous to notice in this place. In the second part of this volume, the author

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* De sed. et caus. morb. ep. 111 at 37.

† Cours. d'anat. med. T. 3. p. 354.

‡ Opera Varia. T. 1. p. 45.

§ Transact. of a Soc. for Improv. of Med. Knowledge, vol. i. p. 127

‖ Acad. Annotat. lib. vii. cap. ix.

¶ Hufeland's Journal, Bd. 1813. 1. S. Jan. S. 122.

treats of the "*Influence of increased venosity upon the functions of other parts of the animal body.*"

Diseases of the venous system, says Dr. P., are particularly apt to influence the disposition of the mind, and to induce a general feeling of languor and illness. In hypochondriac, and what are usually called bilious habits, the venous system generally predominates conspicuously over the arterial. The veins are turgid and large; the blood is thick and very black, and moves forward sluggishly. We almost always find persons who are habitually of a melancholic disposition much troubled with hæmorrhoidal affections.

Where the "*venous diathesis*" prevails, there exists almost constantly a sense of general indisposition; with distressing anxiety of feeling, accompanied with a dark and sallow hue of the countenance. The animal passions and appetites, also, are much influenced by the "venous diathesis." The appetite is often entirely absent, but occasionally, also exceedingly ravenous and insatiable; the venereal passion is commonly very strong; and there is generally much indisposition to muscular exertion. Irresolution and want of moral energy is often conspicuously manifested by persons of this habit of body; there is also a fretfulness and peevishness of temper, connected with this state, which renders the patient displeased with himself, and with every thing about him. The symptoms occasionally increase in intensity, until a perfectly melancholic or hypochondriac condition is established.

Have we any evidence, however, that these symptoms are the product of a predominant venous diathesis? The author endeavours to support the affirmative by referring to cases in which symptoms of this kind were manifestly connected with disorder in the venous system. Stahl, Fuchs, Pohl, and many others, assert that hypochondriasis often depends on disease of the *vena porta*; and our author thinks it probable, that hysteria is often the consequence of a *varicose* state of uterine veins, but he does not offer any good reasons for this opinion. The connexion between hypochondriasis and

hæmorrhoidal affections, is frequently demonstrated in a clear manner, by the regular alternation of these two diseases; in many instances we find that while the hæmorrhoidal tumours are large and discharge freely, persons of a hypochondriac habit are free from the distressing symptoms of this latter disease; and, on the contrary, when the hæmorrhoides are absent, they are gloomy, apprehensive, distressed and sluggish, both in mind and body. We have already stated, that by the "*venous diathesis*," or "*venosity*," the author understands not only the inordinate development of the whole or a part of the venous system, but also a blood, which possesses the characteristic properties of *venous* blood in too high a degree. That such a state of the blood may sometimes exist, there can be no doubt, and it is equally certain that *venous* blood is totally unfit to sustain the vital properties of the system; that its impressions on the brain, or rather that the want of *arterial* blood in this and other organs, is immediately manifested by insensibility and inaction.

It would not therefore be hypothetical to assume, *a priori*, that a blood which is too highly venous, will produce a general inactivity and torpor of the system, analogous to that which we discover in hypochondriasis: but we cannot with equal propriety deduce from such a super-venous state of the blood the symptoms of hysteria, which, in general, manifest rather too much sensibility and irritability of the system, than too little.

The author, in the next place, considers in detail the influence of the venous diathesis on the functions of the brain, the muscles, the heart, the respiratory organs, the arteries, the secretory organs, the digestive organs, and of the lymphatic system. In relation to the influence of a venous diathesis on the function of nutrition, Dr. P. observes, that there is an especial tendency to obesity, when the blood becomes preternaturally charged with those constituent elements which characterize *venous* blood. When *carbon* and *hydrogen*, are present in a superabundant degree, we should indeed natural-

ly presume that fat will be more rapidly secreted by the nutritive process than in an opposite state of the circulating fluid. And this is, in fact, almost invariably the case in persons in whom the diathesis in question prevails. It is on this account, says our author, that a congestive state of the portal circulation is so commonly connected with large collections of fat in the abdominal viscera and parieties; and that we generally find persons become corpulent about the period of life when the *venous* begins to predominate over the *arterial* system of vessels. It would appear that the inordinate secretion of fat is a means which nature employs to free the blood from the excessive quantity of hydrogen and carbon which constitute "increased venosity," and which in a perfectly regular performance of all the functions, are eliminated through the various emunctories designed for this purpose. The third and concluding section of this work is devoted to the consideration of the "venous constitution; with the history of some complicated diseases in which the venous system was prominently concerned." According to the author there are two varieties of venous constitution: the *atrabilious* and the *phlegmatic.* In the atrabilious venous constitution, *carbon* predominates in the blood; and in the *phlegmatic* hydrogen is superabundant. In the latter constitution, namely, the *phlegmatic venous,* there is an especial tendency to obesity; the countenance is pallid and tumid; the mucous secretions are generally copious: and respiration is slow, rather difficult, but not feeble. There is no feeling of general indisposition, or want of mental tranquillity essentially connected with this constitution. Persons of this habit, are in general, not particularly predisposed to disease. They are, however, more liable to local venous congestion, terminating in athritic affections, hæmorrhoides, mucous discharges, &c. The diseases of such persons are commonly of the venous kind. A prominent character of this constitution is, that the "increased venosity," is most readily, speedily, and safely removed by copious secretions of mucus and fat.

The *atrabilious venous* constitution, is connected with the melancholic or melancholic-choleric temperament of the older writers. This constitution is manifested by a yellow, greenish, dark, greasy aspect of the countenance; the body is seldom fat, often lean, but generally well nourished. The sensibility is increased; the muscular power depressed and languid; the arterial system is irritable, with a large, full pulse, and the disposition to inflammation considerable. Persons of this constitution are particularly liable to hepatic affections.

The author, in the next place, proceeds to treat of the various diseases which are more particularly incidental to persons of the atribilious and phlegmatic venous constitutions. These are, hypochondriasis, hysteria, gout, gastric and mucous fevers; hæmorrhoidal affections, scurvy, putrid fever, yellow fever, typhus. In the fourth and concluding chapter, the author speaks of the remediate treatment of the diseases of the venous system. Upon this subject, however, he is less explicit and interesting, than we could wish him to have been. His sole object appears to have been to give a full and connected view of the pathological side of his subject, and in this he has, according to our judgment, succeeded very well.

E.

ART. III.—*Typhus Syncopalis, Sinking Typhus, or the Spotted Fever of New England, as it appeared in the Epidemic of* 1823, *in Middletown, Connecticut.* By THOMAS MINER, M. D.

OUR readers will recollect that we had occasion, not long since, to notice a work entitled, "Essays on Fevers and other Medical Subjects," by Drs. Miner and Tully. We concurred with the great majority of our medical brethren, in severe and unqualified disapprobation of the contumelious manner in which their medical opinions were thrown in the faces of the profession.

We will not say that the severe strictures, which the

character of the work elicited, have chastised the author of the present pamphlet into a more courteous and conciliatory address; we will presume that the native good sense, which he certainly possesses, aided by mature reflection, has subdued his invidious feeling, and taught him, that difference of opinion in matters which are notoriously and proverbially unsettled, does in neither party necessarily indicate weakness of understanding or malice of heart. We presume, too, that he has become practically convinced of the impolicy of insulting the tribunal, by the decision of which alone his principles are to stand or fall. The character of the pamphlet which we are to examine, we regard as a silent apology for that of the Essays which preceded it. We regret that the author did not earlier assume and adhere to the motto which he has adopted: "For my own part I am contented to write faithfully what I have observed, leaving every body afterwards to follow his own way at his peril." A faithful observance of this principle has enabled our author to furnish us with a well condensed body of facts, in relation to one of the most interesting and characteristic diseases of our climate. If the author's observations are correct, which can be determined only by the observations of others, these thirty-two pages of practical matter are calculated to be more valuable to the profession than as many volumes of closet speculations on the occult causes and nature of disease.

For our own parts we frankly acknowledge that we have not had that ample opportunity to scrutinize the phenomena of this particular epidemic, which would qualify us to act as an umpire in relation to what is questionable in its character and treatment. Even if we deemed ourselves adequate, however, the pamphlet is so completely a statement of facts, as almost to preclude critical examination. Our object in introducing it, is to make such copious extracts, of what we deem its most important parts, as may give our readers an opportunity to form their own opinions with regard to its character and value; and also to enrich the pages of our Review, as

much as possible, with matters of fact. At the same time we claim the privilege, wherever general pathological remarks may occur, to interpose our own observations.

We agree perfectly with our author in regard to the existence of a distinct disease, or class of diseases, as further investigation may determine, which is strongly characterized by the symptoms that he describes, and to which he very pertinently applies the name of *syncopalis*. We surely have ample evidence of the existence of a subtle morbific cause or causes, the immediate tendency of which is to extinguish the very elements of life. It would appear that its deadly influence was exerted universally on the system to paralyze at once the vital principles of irritability and contractility, rendering each organ insensible to its ordinary and appropriate stimuli. This malign influence, it is obvious, can only be met by remedies which antithetically correspond to the presumed nature of the cause. These, surely, are the most prompt and diffusible stimuli, whose vivifying influence pervades every part of the system and meets the enemy with a counter impulse.

The existence of a disease of this nature, and the propriety of employing this class of remedies, has evidently been too reluctantly admitted by many members of the profession. This has probably been occasioned by their not having had opportunities to observe the phenomena of this disease, or by attributing them, when seen, to very different causes known to produce *indirectly* a somewhat similar train of symptoms. Hence they have regarded the pathology of this disease as a kind of anomaly in medicine. But on the other hand it is evident, that those who have developed the character of this disease, have, as is very natural to such as advance new doctrines, perniciously carried their principles beyond the natural limits assigned to them, and have too often presumed similar symptoms to arise from the same immediate and remote causes. We are willing that they should cover as great a superficies with their doc-

trine, as its own dimensions will allow, but we cannot suffer them after the manner of Queen Dido, to cut it into strips and thus to circumvent the whole system of pathology. We have no doubt that in many cases of typhus, and of other diseases, which our author regards as specifically different from that under consideration, cerebral or pulmonary congestion, or an engorgement of the great vessels of the heart, may produce prostration of strength, small pulse, and many other symptoms in common with syncopalis. We have the evidence of our own senses that gastric and intestinal irritation also do sometimes produce a remarkable train of subsidentia.

In a case of measles, which is fresh in our minds, we recollect to have witnessed a most alarming prostration of the vital powers, which was not at all relieved by cordial remedies, till we had thoroughly purged the stomach and bowels, with ipecac. and calomel, of a great quantity of irritating cordes, when the whole expression of the disease was at once changed. There is not in medicine a more important desideratum, than a correct diagnosis between these two classes of diseases, nor indeed is there any thing, which in theory requires more nicety of discrimination, or in practice more promptitude and decision. It is obvious that, in those cases of sinking typhus, where the cause operates directly to depress the powers of life, bleeding, with a view to relieve an oppressed pulse, or copious purging under the idea of intestinal irritation, in the most strongly marked cases and before reaction has taken place, would be almost necessarily fatal; while in those cases in which the latter causes prevail, the continued use of stimuli and irritants, without removing the offending cause, would be little less injurious.

We have an idea that the apparent paradox of increasing a feeble pulse by bleeding, which does actually occur in some cases, has great attractions for some practitioners, because it it a mystery beyond the comprehension of the vulgar. Their professional sagacity, in this matter, however, too often leaves common sense behind it. If there is a more mischievous il-

lusion in medicine than this, it is that which deceives the practitioner into the use of tonics and stimulants, in protracted cases, where the degree of action is equal to or above the natural standard, from apprehension of subsequent debility, thus wearing out that excitability which nature would have held in reserve against greater exigencies.

"Between the last of March and the last of December, 1823, two of the physicians* had the care of more than a hundred and seventy severe cases of fever, in Middletown, Connecticut, which went through their course, and required close and vigilant attendance. They also had the charge of more than a hundred and eighty other cases of the same sort, which, either from original mildness, or prompt treatment, proved to be comparatively slight. The latter class of patients, however, were so much indisposed, as to be unable to attend to their ordinary business, for a period of one or two weeks; though unlike the former, they were not entirely confined to their beds for any considerable time. Out of these cases, being in the whole about three hundred and sixty, twelve died; viz. six adults, and six children. One half of the mortality happened in November. In the succeeding month, the epidemic terminated. Persons of all ages, from one year old to seventy, and of both sexes, were the subjects of the disease. It is perhaps needless to remark, that the following statement applies more particularly to the severer cases, unless the more moderate are distinctly mentioned.

"There were two varieties of attack, the sudden, and the insidious. The most sudden attacks were the soonest relieved, provided the patients had prompt and appropriate treatment; and under such circumstances, the disease rarely exceeded five or seven days. In some of the severest cases, the disease arrived at its height on the third day, and under careful management, the patient appeared subsequently to be free from danger. Not one, this year, that was suddenly attacked, died; the recovery, in most instances, being the evident consequence of the promptness and decision of the treatment, and of the necessity which both patients and attendants felt, of following prescriptions scrupulously.

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* "Dr. Edward S. Cone and the author. The patients were principally Dr. Cone's, but were mostly visited by the author in consultation.

"In the insidious cases, the subjects of the disease were affected with the symptoms about to be described, in a mild degree, for a greater or less length of time, and many seemed to labour under a kind of infatuation concerning the malady and existing danger, and were almost invariably inclined, for several days, to ascribe their indisposition to some other cause, than the prevailing epidemic; and if, at the instigation of friends, a physician was called, they could not be induced, without the greatest difficulty, to follow any regular plan of treatment, till violent symptoms occurred, sometimes as early as the third or fifth day, or more commonly, as late as the seventh. A few insidious cases continued two or three weeks, before there was apparent danger.

"The whole number of deaths, this year, happened among the set of insidious cases. One of the adults died on the third day; one, on the fifth; one, on the ninth; one, at the end of the second week; one, at the end of the third week; and one, on the fifth week. Besides, in one of these fatal cases, the disease was complicated, at first, with dysentery; in one, with gout; in one, with a chronic hepatic affection; and two had hæmorrhage from the lungs. The other did not substantially vary from the common insidious cases. Some of the children died at the end of a week; the others, at the end of a fortnight.

"A few of the cases were complicated with dysentery; some, with colic; two or three, with cholera; some, with cynanche; some, with cough of pneumonia; two or three, with rheumatism; one, with gout; a few, with severe pain, and passive inflammation of some of the extremities. The great majority, however, had no apparent local affection, except of the brain, and of the parts that more directly sympathise with that organ.

"During the prevalence of this epidemic, chronic diseases nearly disappeared, and when they did exist, their acute paroxysms were invariably blended with the prevailing epidemic. For eight or nine months, it was difficult to find a case of acute disease, that did not partake of the epidemic constitution, under whatever head it might be nosologically classed. Not more than two or three cases were, this season, attended with petecchiæ. In one of these, they were very dark and prominent. A marbled skin, efflorescences, and eruptions, appeared in many instances.

"In nearly every instance, whether severe or moderate, the disease began with more or less pain in the head, especially about the forehead. Vertigo was also a symptom

almost universal. In some, a sudden faintness, dizziness, or sense of extreme exhaustion, so that the patient could neither sit nor stand upright, was the first symptom. In others, the attack resembled a severe concussion of the brain, or a sudden stroke of palsy or apoplexy. Indeed, every thing seemed to show that the brain and nervous system were the primary seat of the disease.

"In almost every case, the skin was preternaturally cool, for several of the first days, and subsequently, in temperature, *it never exceeded the standard of health*, in more than than three or four cases. Even after it had been warmed by internal and external heat, in conjunction with stimulants, it was ever liable to become *partially* cold, as about the thighs, knees, legs, arms, hands and feet. In the course of the disease, more especially in the worst cases, it was almost always so much benumbed, as to be insensible to an ordinary pinch or scratch, and while in this state, incapable of being affected by common sinapisms and blisters. This numbness was sometimes most prominent in one side, or even in one leg or arm. In the latter stage, however, there sometimes occurred periods of extreme susceptibility to the impression of rubefacients and epispastics; but as a general rule, external applications, of ordinary strength, would produce very little effect, till something like reaction had been effected. Complete agues or rigors, this year, were very rare in any stage of the disease. Commonly, through the whole course of the disease, the surface, though not dry or husky, was seldom much inclined to spontaneous moisture. In a few instances, however, there was a morbid, drenching perspiration. Sometimes, though rarely, the patient would complain of a general sensation of heat, though, to the feel of the attendants, he would be actually cold. Is not the heat, which has been often said to occur in some epidemics of this disease, either a transient flush, or the *calor mordax*, the stinging sensation merely, and not the actual augmentation of thermometrical temperature? If increased heat, and increased frequency of the pulse, are a part of the definition of fever, a great majority of the cases had no fever at all, but were merely an acute neurosis. At this day, however, it is well known that these symptoms are often absent in irregular pyrexia.

"The countenance, in most of the severe cases, had a kind of leaden hue, with marks of anguish. In some, there were patches of a bright flush, intermingled with other patches that were preternaturally pale. In a few cases, the pupils of the eyes were contracted, and in a few, dilated. In some

cases, the organs of sight and hearing were irritable in the extreme; in others, they were equally torpid.

"There were two prominent varieties of the tongue, the contracted and pointed, and the dilated and flabby. The fur of the tongue assumed every possible deviation from health, and was of every conceivable variety, except that it never had the appearance which is usually found in synocha. In the course of the disease, *red tongue* was rather more frequent than any other. Two uncommon varieties of fur sometimes occurred, one of which was a greenish slime, and the other a mucus, varying in appearance, from moist brown sugar, to light coloured melasses. The former was rare; the latter, more common. Most of these varieties of tongue were liable to sudden changes in the same patient. In some of the protracted cases, there were apthæ. A black tongue seldom appeared, and two or three instances of it only were noticed. On the whole, the state of the tongue was of very little service in diagnosis, or prognosis. In general, there was little or no thirst; but sometimes it was urgent. In such cases, it was generally aggravated by cold water, and palliated or removed by a persevering use of aromatics or alcohol.

"The stomach, on the one hand, was usually as torpid and inactive as a leathern bag, so that in many instances, the patient would choose scalding hot liquids; or on the other, it was irritable in the extreme. The change from one to the other of these extremes, was generally sudden, and occasioned by slight causes, or took place without any assignable cause. In the majority of the severe cases of sudden attack, unless the violence of the disease was immediately subdued by very energetic practice, torpor prevailed for the first two days; but for the succeeding three or five, the irritability would be so extreme, that without the nicest and most careful management, vomiting or retching would be incessant. The matter ejected, generally consisted of little more than the drink, or secreted mucus. In a few instances, it was greenish; in a very few, dark coloured. Though in some instances this vomiting was very troublesome, yet there was never any bile evacuated, except in two or three patients that had long laboured under a chronic hepatic disease, or except as the consequence of an ill-timed emetic or cathartic. Indeed, the vomiting or nausea, in this disease, seemed ordinarily to be entirely symptomatic of an affection of the brain, or was obviously the effect of an emetic or cathartic, the sympathies being the reverse of sick-head-ache. This was evinced by its being excited by raising or moving the head, or by plac-

ing the patient in an erect posture, and relieved, by a recumbent position; and especially, by blisters to the forehead, temples, and more particularly, to the vertex. Blisters to the region of the stomach alone, though of some service, produced much less effect in relieving this symptom.

"With the exception of the few cases that commenced with diarrhœa, cholera, or dysentery, the bowels were naturally torpid. Ischury, from mere torpor of the bladder, was much more common, than in other low typhoid diseases. There was a profuse discharge of urine in a few cases. In general, in common with ordinary low typhus of the *nervous type*, there was nothing peculiar in the appearance of this excretion. Indeed, the excretions were never more offensive, and usually much less so, through the whole course of the disease, than in health; and the alimentary canal was not disturbed by any thing which it contained *naturally*. The eructations and ejections of air had no peculiar, disagreeable odour, there was no fetor of the breath, and in all stages, as well at the bed-side of the dying, as at the access of the disease, *there was no febrile smell*

"The condition of the brain, in this disease was usually very similar to that state which is produced by exposure to carbonic-acid-gas, or which is occasioned by excessive doses of some preparations of lead, or of certain essential oils, or of active and pure narcotics. In many cases it resembled concussion, or apoplexy, or palsy. In all the severe, and in a majority of the mild cases, there was from the very access, before a particle of medicine had been taken, *a peculiar deficiency of vital energy in the brain, and the whole nervous system*, so that raising the patient into an erect posture, would generally produce the same sort of vertigo, anxiety at the stomach, acceleration and irregularity of the pulse, nausea, and even fainting, which result from a similar position after a great loss of blood. In almost every instance, the patient was much more comfortable when the head was *low*; and much inconvenience, and even danger, was almost invariably occasioned from any other than a horizontal posture.

"The mind was more or less affected in every severe case. In the majority of such cases, after the patient was induced to apply for medical advice, there was a morbid fear, entirely independent of any existing urgency or danger of symptoms, and of any information respecting sickness and death in the vicinity. The public were not panic-struck, as the deaths were so few, as to cause very little alarm. Fear, therefore, was rarely a predisposing or exciting cause in this town,

though it evidently was, in some of the adjoining. In some cases, there was a morbid clearness of intellect, attended with incessant loquacity, or there was too great watchfulness, and extreme restlessness; both of which states were always, sooner or later, followed by delirium or coma. Nearly every case of delirium alternated with coma, but every case of coma was not attended with delirium. In some cases, the delirium resembled intoxication; in many, hysteria; and in others, it was of the low muttering kind, such as is common in ordinary low fevers. In some few cases, there was no other delirium than what was manifested by a false estimate of the disease, the patient, when in the greatest danger, instead of showing any signs of fear or apprehension, insisting that he was but slightly sick. In most cases which received early and judicious medication, delirium did not occur to any extent.

"Except where there are convulsions, or, in a very few instances, where something like maniacal exertion appears, or when the fever counterfeits delirium-tremens, the affection of the brain in this disease (unlike many head-affections in pneumonia-typhodes, and common typhus,) rarely produces any increased muscular strength; but on the contrary, it usually occasions great languor, and inability for muscular exertion, which is more especially manifested when the patient is in an erect posture. As has been before observed, this debility was a kind of paralysis, and appeared to arise from a partial extinction of the vital principle, more resembling the effect of excessive doses of the active and pure narcotics, or of a sudden and violent concussion of the brain, than the exhaustion of the latter stages of common fever. The exhaustion or deficiency of *vital energy* in both cases, appears to be the same, and the same proportion of the living principle is extinguished; only, at the end of protracted fevers, there is a great waste of the solids and fluids of the body, which must be repaired before much muscular strength is acquired.

"In many of the severe cases, the patient on going to sleep, would fall into a state resembling incubus, with difficult or partially suspended respiration, which would require his being awaked as often as once every five minutes; and some could not be allowed to sleep longer at one time for several days, without their spontaneously waking in the most excruciating fright and distress, and finding themselves greatly exhausted.

"During the progress of the epidemic, every variety of pulse occurred, except the *strong* and *hard*, and this often in the same patient. In many of the mild cases, and in most

of the others, till the period of fatal sinking, it was rarely so frequent as in health; but towards the close of life, in several of the fatal cases, it was a hundred and twenty or thirty, and occasionally, a hundred and sixty in a minute. In less than twelve hours, it would sometimes vary in frequency from forty, to a hundred and thirty. In one instance, it was as slow as twenty-seven beats in a minute, and in six or eight hours varied to a hundred and thirty. This patient recovered so rapidly, that he was able to ride out in a week from his first attack. After the disease was fairly formed, whether it was moderate or severe, an erect or sitting posture would almost uniformly accelerate the pulse forty or fifty beats in a minute, and sometimes double its frequency, besides producing considerable irregularity. In a very few cases, the pulse was a hundred and twenty at the very first attack. The pulse alone, (as is the case with the tongue,) is a very deceptive guide in this fever. At various times in the course of this disease, and even in the dying, it would occasionally give a delusive feel of fulness and force, that often deceived the very best judges respecting the danger, unless attention was particularly directed to other symptoms. In such circumstances, in former epidemics, bleeding has been seriously proposed by a counsellor, while the attending physician knew the patient to be actually *in articulo mortis*. In other epidemics, in which this disease was mistaken for active inflammation of the brain, or for apoplexy, when the patient has been bled, death has ensued before the ligature could be taken from the arm. In most of the worst cases, the circulation was daily so languid by turns, that the extremities had a livid appearance, and were often nearly pulseless. One patient at least recovered, that was without pulse at the wrist for several hours. Some of the fatal cases were attended with a very distressing palpitation of the heart.

"A very prominent symptom, which occurred in some degree in almost every instance, even of the mild cases, and probably without an exception in all the severe, and happened in every stage, sometimes constituting the first access of the disease, consisted of paroxysms of *subsidentia*, or a death-like *sinking* sensation in the epigastrium, that was described, sometimes as extreme distress, sometimes as a painful sense of vacuity and faintness, sometimes as trembling or fluttering, sometimes as real pain and anguish, and at others, was declared to be utterly indescribable. During the existence of these paroxysms, the coolness and numbness of the skin, the lividness of the extremities, the feebleness of the pulse, and

the indications of distress in the countenance, were much augmented. Sometimes these paroxysms of sinking, were attended with palpitation, and often with spasms; though spasms, tremors and subsultus were not uncommon in every stage. In the mild cases, these paroxysms of sinking occurred *regularly* in the morning; but in the severest they were not confined to any particular hour of the day. Singultus was extremely rare, as also was indurated, inflated, or tympanitic abdomen.

"In many of those cases which were neglected or treated with evacuants, or in which the early symptoms were not decisively and fully met and subdued by appropriate remedies, a peculiar and somewhat different, and usually irreparable sinking and exhaustion occurred, *after a critical effort*, or in lieu of a crisis, on the third, fifth, or more commonly, on the seventh day. In a few cases, it did not occur till the end of the second or third week. Under such circumstances, in addition to the sinking in common with other cases, the respiration was interrupted and peculiar, and much resembled that of the dying, or rather that of animals (as it is described) after a division of the *par vagum*, the inspirations occurring only at intervals of several seconds, and being usually long and full, while the expirations were so short, that the breath was parted with instantaneously. This *critical* sinking, in combination with morbid respiration, was often the first warning of danger to the patients and attendants, in the insidious cases, and it was almost invariably irremediable; for, although every symptom could be met for a time, to the full extent, and although the most decided operative effects of medicine could be produced, and life often be prolonged for days, yet the weight of the disease could rarely be lessened, and, in one of the succeeding critical efforts, the same symptoms would almost inevitably prove fatal. In other fatal cases, the disease terminated in a deadly coma. Paroxysms of coma were periodical in some instances, as were those of sinking in others. The former description of sinking and anxiety, which was principally referred to the epigastrium, in distinction from the *critical*, may be termed *ordinary* sinking. It was usually relieved when taken in season, and treated with energy.

"Hæmorrhages were rare in this disease; but when they did occur, they were mostly fatal. One case of a child which died on the seventh day, was attended with symptoms of chorea. One or two cases were seen that resembled delirium-tremens. Many had most of the usual symptoms

of hydrocephalus-internus. Several retained their habitual relish for strong tea, snuff, and tobacco, through the whole course of the disease. Milk-porridge, or broth, was the food that generally sat easiest on the stomach. In a few cases, there was a strong disposition to eat heartily of solid animal food. In those in which this appetite was moderately indulged, it seemed to digest properly; at any rate it produced no sort of inconvenience.

"In opposition to ordinary fevers, in this disease the symptoms were generally much more urgent and severe in the morning, than in the afternoon or evening; that is, the patient was most dangerous during the remission. The reaction of the exacerbation in the afternoon, though it did not reach the standard of health, and could not even be considered as reaction at all in common fevers, made the patient comparatively easy. When there was a resolution of the disease at its outset, a relapse would infallibly supervene suddenly, upon any considerable irregularity of diet, exercise, &c. within the first week; but when the disease had once run its course, there were very few relapses during convalescence. There were several repeated attacks, after the most perfect recovery; and several of the patients had had the disease the preceding year. Critical periods were most prominently observed. When a case was protracted longer than five or seven days, as in the last stage of almost every acute fever, the disease appeared, though still more liable to severe and fatal sinking at the critical periods, not very unlike common low typhus, in which delirium, tremors, subsultus, coma and sinking occur; and was not easily distinguished from it, especially by counsellors, who could not witness its whole course.

"The treatment, as respects *degree*, was almost as various as the number of cases; but it was alike in *kind*, in all; and there was abundant evidence, of the necessity of *avoiding every thing that might waste the vital powers.* This was more especially the fact, with respect to evacuations, which, if copious, *invariably* rendered the mild cases severe, and the severe ones, fatal. Probably more than three-fourths of the fatal cases were the consequence of spontaneous or factitious purging or vomiting. Emetics did not answer at all, as the mildest would almost inevitably produce incessant vomiting, which, if not controlled by very large doses of opium, or by great quantities of laudanum by enema, would end in exhaustion and death. More than three quarters of all the cases, however, whether severe or moderate, were at first very

slightly purged with calomel, so guarded as not to operate before twelve or eighteen hours. It was necessary to manage laxatives with the greatest caution, and very generally, to conjoin them with opium. Calomel, accompanied with a diaphoretic regimen, if retained on the stomach twelve hours without operating by the bowels, in the light cases, would lessen, and often remove all the morbid action; yet, much more caution was necessary in this process, to ensure a resolution, than in common typhus. Nevertheless, more than two copious dejections never took place, without the most obvious injury. It is as safe to leave a wounded artery to nature, as in this disease, to administer a cathartic, without directing its free operation to be *instantly* checked by opium. Those patients, who of their own accord attempted, at the outset of the disease to purge themselves, even with castor-oil, provided it operated more than once or twice, were commonly found by the physician in little better than a dying state, and always required the most assiduous exertions for their recovery. Several that adopted this plan were seen, who could never be raised, and obviously sunk down and died, in consequence of it. One patient was seen, that sunk irretrievably, by a single operation of an enema.* In about a fourth of those patients who had the disease in its severest form, a judicious physician would no more think, at first, of vomiting or purging, than of employing those processes to mitigate the struggles of the dying. In several of the *worst* cases, *cathartics could not be made to operate*, while the patient was in the lowest state, and there was not the least inconvenience, from having nothing pass the bowels for a week; and in some of these, when the patient was considerably better, the bowels spontaneously resumed their natural action. The proper time for evacuating the bowels in the lowest cases, was indicated by tenderness of the abdomen, uneasiness, or slight pain, which showed that the torpor of the intestines had ceased. Under these circumstances, the discharges were never indurated, but were always perfectly natural. In many cases, a single enema, or a small quantity of magnesia, or rhubarb, or an aloetic pill, was necessary as an eccoprotic, or at farthest, as a laxative once in two or three days. It is to be observed, that the opium should not be abstracted on account of the laxative or any

* When patients are mentioned *as seen*, it is meant in consultation, and they are not included in the three hundred and sixty cases, the immediate subjects of this sketch.

other article, but only as the other symptoms admit. On the whole, the best way of evacuating the bowels, appeared to be produced, by giving daily about a dram of magnesia, and if necessary, assisting it every other day by an enema.

"The opinion, that in this disease, and more especially in any of the distinctly marked cases, purging would increase the susceptibility to the impression of stimulants, was *utterly unfounded.* The morbid action could not be changed, in the severest cases, by evacuents and alteratives, it could only be controlled by exciting and supporting the vital powers by stimulants, and such articles as appear to have *an immediate action on the brain and nervous system.*

"If by vigorous treatment, the system could be raised in a day or two, to a mercurial, or purging, or vomiting point, the victory might be considered as already gained, and there was very seldom any need of either of the processes of vomiting, purging, or ptyalism afterwards. As a general rule in this epidemic, it might be affirmed of cathartics, with the utmost certainty, *juvant per casum, nocent per se.* In every instance, the mildest forms of the disease were rendered severe and unmanageable, by *free* purging or vomiting. If they did not sink, which was usually the fact, they became *factitious*-bilious fevers, which were obstinate and unmanageable. In a few *bad* cases, in which a slight mercurial action was excited, it was of no sort of service; and in such cases, if irritable, strangury from cantharides only distressed the patient.

Opium was the most important remedy in the severe form of this disease, and was, in such cases, *regularly* administered from the very first visit. A few cases imperiously required half an ounce of the tincture in an hour, or half a dram in substance, in the course of twelve hours, before the urgent symptoms could be controlled; and even some cases required a dram in the same time. All these patients recovered. In nearly every fatal case of this year, there were circumstances to prevent a free use of medicine. *The whole of those patients, whose symptoms were promptly met with opium, invariably recovered.* Opium *enough*, assisted by external applications, would command every peculiar symptom, with as much certainty, as any effect can be promised from medicine, except the extreme sinking, after a critical effort, in a neglected, or ill-managed case; and even in this forlorn state, it always mitigated much of the anxiety and distress, and prolonged life. Many other articles, however, were very useful in the course of the disease.

"Alcohol was highly beneficial in some cases, and required to be employed freely in many, but it seemed not to be equally adapted to all, and on the whole, was of much less importance than opium. Wine seemed totally unfit for the severer cases. Lytta and capsicum internally, were very serviceable in the torpid cases, but were entirely unmanageable, and greatly increased the irritability of most of those which were previously irritable. Arsenic, (Fowler's Mineral Solution,) was highly serviceable when the head was very much affected, and the stomach at the same time torpid. In some irritable cases it answered well, but it was necessary to adjust the dose very accurately, in order to have its full effect on the one hand, and not offend the stomach on the other. In these cases, however, it agreed better than any thing else, except opium, or perhaps alcohol and aromatics. Delirium resembling mania, was occasionally relieved by tincture of stramonium, combined with tincture of opium. Camphor and ammonia answered a good purpose in the more moderate cases, but were worse than nothing in most of the severe. Ether was of no service for permanent support, but was occasionally very useful during the sinking paroxysms. The same was the fact with peppermint, and other essential oils. Oil of turpentine was not used internally. Cinchona, and the other *vegetable bitters and tonics*, did not the least good in the *severe* cases. They were too slow in their action to produce a perceptible effect, till after a crisis, or in the protracted stage of such cases, as assumed the form of common typhus. After convalescence commenced, they were often useful to assist in retaining the ground which had been gained, and to accelerate recovery. In these instances, if the stomach was irritable, sulphate of quinine was preferable to any other preparation of cinchona.

"In all the varieties of this disease, internal medicines were greatly assisted by external applications, which were adjuvants that could never, with safety, be omitted. When it was practicable, the early use of the *hot-bath* was of great service, and it was much to be regretted, that it could not be oftener employed in the first stage. Warm or tepid bathing was rather injurious. The water should be so hot, as to make as strong an impression as can be borne, without danger of scalding. When strong, and at the same time quick rubefacients were required, bottles of hot water, heated bricks or wood, hot spirits, mustard, liquor of ammonia, capsicum, and oil of turpentine, were important agents. Epispastics of cantharides would produce no effect in many cases, till the skin had been

first excited in this way; but as soon as the susceptibility of the patient was raised, by internal and external means, to the blistering point, the freest application and repetition of them, was attended with the most obvious beneficial effects. They were more especially useful to the *shaved vertex*, forehead, temples, spine, epigastrium and extremities. In every case, (the very mildest are not with safety excepted,) the forehead, and in the severe, the vertex, should be immediately blistered. Shaving the head, and blistering it *early*, is more serviceable than any other external application. Torpor of the bladder almost invariably yielded to sinapisms, or more especially, to blisters on the inside of the thighs. So sensible were those patients who had their reason, of the beneficial effect of blisters, that they frequently begged to have them repeated. To one patient, more than twenty blisters, and to another, more than thirty were applied during the course of this disease, and evidently with the greatest advantage. *Oil of turpentine, warmed, and confined to prevent evaporation, was the speediest epispastic*, and was of much benefit in coma. In a very few cases, there supervened such a peculiar irritation in the latter stages, that blisters required to be repeated with caution, on account of strangury, as this symptom, in irritable cases, sometimes increased the morbid action. It always lessened it, in cases of torpor. In no other disease is it so essential to distinguish counteracting, from coinciding agents. But after all, in the severest forms of the disease, *opium, alcohol, arsenic, aromatics, and external applications*, with no other medication, might be depended upon.

"In the mildest cases, after *cautious* purging with calomel, the prescriptions were almost negative; such as to avoid vegetable acids, cold water, muscular exertion, *an erect position*, for any considerable length of time, much purging, and various other hurtful measures. Numbers of cases might be stated, in which the patients, while labouring under an apparently moderate disease, from a false idea that they should gain strength by sitting up, have produced the most dangerous paroxysms of vertigo and sinking, some of which have been followed by death. Many of the severest cases did not admit of being moved from their beds for several days; since the slightest motion, or change of position, was liable to produce a severe paroxysm of sinking, and increase the exhaustion to such a degree, as to require hours to regain the ordinary strength. Some slight cases might be trusted to aromatic, bitter infusions, alone; others, to camphor and ammonia.

In several of these, no calomel, or opium, or alcohol, or any active medicine, was needed or employed, provided all hurtful measures were studiously avoided. In many, a blister to the forehead, serpentaria, camphor and ammonia, compound tincture of cinchona, and opium in very small quantities, were all that were required.

"Profuse sweating from external heat was useless in the mild, and inefficient, or injurious in the worst form of the disease, unless employed at the very access; and in this stage, it could rarely be used with convenience. By the time a physician is called, it is generally too late for sweating to be of much service; though, when employed very early in cases of *sudden attack*, it is sometimes capable of breaking up the disease, especially in the torpid variety. Under such circumstances, it ought generally to be tried. The duration, severity, and mortality of this disease, depend more than any other, upon the early management.

"On the whole, it must be repeated, the epidemic afforded the most decisive evidence, in favour of the efficacy of a free use of opium, when employed in season, for the removal of coma, and other atonic affections of the brain. When the early treatment was efficient, there was sometimes a resolution in twenty-four hours, or the disease rarely lasted longer than five or seven days; but when the practice was so timid and inert, as only partially to meet the symptoms, if the patient did not immediately sink it was generally protracted somewhat in the form of common typhus, fourteen, or twenty-one days, and in some few cases, four or five weeks. [For other particulars concerning principles and practice, see ESSAYS ON FEVERS, &c. especially those parts of the work which treat of the *irregular* varieties.]

"This epidemic, very obviously, was not common typhus, as that term is intended to include the nervous and putrid fevers of the older authors. What then was it? It has been questioned whether it was nosologically the same as the Hartford Spotted-Fever of 1809; and by those who did not witness the disease, even whether that epidemic differed essentially from common typhus, or nervous-fever.—The peculiar and extreme deficiency of vital energy in the brain and nervous system, from the very access of the disease, *without any appreciable reaction during the whole course*—the early urgency of the symptoms—the constant liability to coldness of the extremities, and numbness of the skin—its degree of insusceptibility to the action of strong rubefacients and blisters—the peculiar distressing and death-like SINKING in

the epigastrium—the craving of hot liquids—the alternation of extreme torpor and excessive irritability of the stomach—the great liability to sudden and irremediable sinking—the respiration resembling that of animals in which the *par vagum* has been divided—the immediate exhaustion produced by an erect position—the delirium resembling intoxication, (when neither alcohol, opium, nor any other medicine had been used,)—the extreme variableness and irregularity of the pulse, particularly its occasional deceptive fulness and force, when the patient is in the most alarming state of exhaustion—the very rapid progress of the disease—the impunity, at least, with which the most extraordinary doses of opium were borne, (which must be acknowledged by all, from the unparalleled success of the practice, whatever may be realized of its necessity and advantage by those who did not watch the whole progress of the cases,) the injurious effects of *free* evacuations, whether spontaneous or factitious—the general inefficacy of all medication to gain a hair's breadth upon the disease, when, from neglect or bad management, the patient had once sunk down at a critical period, though perhaps the same degree of exhaustion might not have been very alarming at the crisis of any other ordinary fever, and though individual symptoms might be capable of material palliation—the absence of febrile smell, and indeed, of any uncommon fetor of the excretions—all mark the identity of the disease with the Hartford Spotted-Fever of 1809, and evince its diversity from common typhus or nervous-fever. From these considerations, it is believed, no one will hesitate to admit that this disease, at least as respects the severest and most sudden cases, was genuine spotted fever, and that it was essentially different from common typhus. Indeed, the two diseases differ so much, especially during several of the first days, that the best treatment of common nervous fever, would prove fatal in every severe case of spotted fever. With the utmost confidence it is asserted, that by the experienced, they might be always discriminated, and therefore should never, at this late day, be mistaken, or confounded together. It is true, that in a great majority of the cases of this year, the disease was less violent, and more manageable than the Spotted Fever of 1809, and indeed, than it was this same season in several adjoining towns. The only difference appears to be that the mild and insidious cases, were in a much greater proportion, this year, than formerly. The cases of sudden attack, were identically the same as those of 1809, and *all the others* were clearly varieties of the same epidemic. But this

is a point of difference which existed to an equal degree between several of the different cases of both epidemics. Why may there not be prominent varieties of spotted fever, as well as of common typhus, yellow-fever, cynanche-maligna, pneumonia-typhodes, dysentery, &c.?

"This disease, however, was peculiarly distinguished from every other, by the *early* paroxysms of sinking that attended it, by the entire absence of the *stage* of reaction, which is so essential to ordinary fevers, and by the great effect which opium had in mitigating all the dangerous symptoms of *every stage*, but more especially, irritability, delirium and coma. In every instance, except after the fatal sinking of a critical period, provided a sufficient quantity could be swallowed, or received and retained by enema, (which latter, in some few cases, was the best way of administering it,) it seemed to be invariably capable of obviating the symptoms in question.

"In common typhus, whether of the nervous or putrid type, even after a critical sinking, we can, in general, not only call the remaining excitability into action, but as is evident, actually produce a new secretion of vital power. But this can rarely be done, after this critical sinking of the *worst* cases of spotted fever. If therefore, we have not produced an early change, or begun thoroughly with a much more energetic course, than similar symptoms in ordinary typhus would demand, or even justify, our prospect of success is small. It is the sudden attacks of the severest cases, which rouse all our energy, and usually make us even more successful in this disease, than in ordinary fevers.

"To conclude,—Typhus syncopalis or the spotted fever, when neglected or injudiciously managed, is among the most deadly maladies which a mysterious Providence permits to scourge the human race. When taken in season, and treated with decision and judgment, few diseases yield with so much certainty to a proper course of medication.

Our author and our readers will, perhaps, think this an odd way of *extracting*, which swallows up almost the whole book; we trust, however, neither to offend the one nor the other. From the concise style in which the *sketch* is written, and from the form in which it is published, we presume that our author's principal object is to diffuse the information which it contains. To our readers, if any apology be necessary, we would observe, that we found it impossible to give an intel-

ligible *sketch*, of what the author himself denominates a "*sketch.*" So brief a history, of so interesting a disease, will not be unacceptable. We can not, however, put our seal to it without some further qualifications.

We are sorry that our author has resorted to the unsatisfactory mode of vindicating the correctness of his principles, and the success of his practice, by contrasting the number of deaths with the recoveries. There are so many ways, in which a man, even of veracity, may wash his hands and his conscience of unfortunate cases, that such statements are little to be relied upon. Were they the true criteria, it would be a very easy matter to foil our author with his own weapons, since there are those, who have practised still more extensively in this disease than himself, and who boast of a greater degree of success, with remedies of a directly opposite character. There is an equivocation in his own remarks which gives a wide latitude to our conjectures. He mentions on the first page, that he visited in consultation three hundred and sixty patients, of whom only twelve died, and these from the association of some other disease. On another page he speaks of a number of cases which were *seen* in consultation. Now we were somewhat puzzled, at first, to ascertain what could be the difference between cases *visited* in consultation, and cases *seen* in consultation. When we perceive, however, that the cases *seen* are mostly those which were fatal, and that they are not included in the three hundred and sixty, we discover a wide difference, inasmuch as the Dr. disclaims all property in the latter. We perceive that there are scarcely any of the fortunate cases which are enumerated among those *seen*, from which we may presume, that they were nearly all *visited* in consultation, and numbered among the three hundred and sixty.

In regard to the history which the author has given of the characteristic symptoms of this disease, we would by no means impugn his veracity, or general correctness. We would observe, however, so prone are medical men to differ, that

even those things, which are subject to the scrutiny of our senses, are differently felt and seen, in conformity to preconceived notions. From some general pathological remarks, which are dropped by Dr. M., particularly in the appendix, we are inclined to think that his faculties are delicately sensible with regard to the subsidentia of the epidemic of which he treats, while they are somewhat obtuse in other respects. The sinking typhus is certainly described with spirit, and we presume, in the main, correctly; but when we witness his attempt to force other diseases, which he acknowledges to be distinct. into a resemblance to it, we cannot but repeat to him the warning apothegm, *ne ultra Syncopalem*, with as much earnestness as we would exclaim, *ne Syncopalis ultra!*

He seems to deprecate, with great warmth, the use of emetics and purges, not only in the disease under consideration, but in almost all others, of which he takes occasion to speak, and particularly in bilious and nervous fevers. We have no doubt that infinite mischief is sometimes done by the injudicious use of irritating evacuants; but yet we have evidence, which nothing advanced by Dr. Miner can controvert, that free vomiting and purging, with proper remedies, are absolutely indispensible in most bilious and many nervous fevers. What, for instance, has Dr. Miner offered, which overthrows the absolute demonstration that the practical work of Hamilton contains. That the practice enforced by the latter would, in the disease described by the former, be injurious, we do not question; but, in the majority of febrile cases, the practice of our author would surely be equally preposterous. When we see such strong evidence of bias, in relation to what we have all had opportunities to observe, we can not but feel our confidence diminished, in the accuracy of his observations on the disease in question, and are lead to notice, with more caution, certain inconsistencies which are presented in his statement.

It will be recollected that, he says, " During the progress of the epidemic, every variety of pulse occurred except the

strong and *hard.*" In the very same paragraph he observes, "At various times in the course of this disease, and even in the dying, it would occasionally give a *delusive* feeling of *fulness* and *force*, that often deceived the very best judges respecting the danger, unless attention was particularly directed to other symptoms." We know not how our author can reconcile these two sentences with each other, unless, by using the term *delusive*, he means to preclude the evidence of our senses, which if he does, we might with equal propriety, declare his own perception of the *sinking pulse* to be *delusive*.

He says that this feeling of force and fulness, sometimes occurred in articulo mortis. If so, the patient could not have died in a "paroxysm of sinking;" there must have been present some other circumstance distinct from direct prostration. He further mentions, that some recovered even after being rendered pulseless; if then the presence of a full pulse was not to be regarded as evidence of vital energy, a small one was not to be considered, in all cases, as indicating an exhaustion of the powers of life.

From the remarks which we have made, it will be seen, that, although we have freely, and we trust candidly, questioned some of our author's observations and opinions, we regard his sketch as a valuable acquisition to our medical literature, and think it ought to be in the hands of every practitioner.

ART. IV.—*Summa Observationum Medicarum ex Praxi clinica triginta Annorum depromptarum. Auctore* LUD. JOSEPHO SCHMIDTMANN. Med. Apud Melenses in Principatu Osnabrugensi. Vol. II. pp. 328—372. 8vo. Berolini. 1821.

THE author of this valuable collection of practical observations, ranks among the most eminent and learned physicians of his country. He does not appear to have devoted himself

like so many of his countrymen, to mere system making and abstract speculative disquisition. Aware, says he, that medicine can be advanced only by observation and experiment, I have avoided all empty speculation and hypothesis, in the following pages, and have confined myself to a careful and candid relation of whatever occurred to me worthy of notice, during a long course of clinical experience, and to the deduction of such inferences as were suggested and warranted by facts. The work is, indeed, purely practical, and bears strong internal evidence of the author's great industry, learning, and talent for observation. But to proceed to an account of its contents.

Chapter I. *De pleuritide et de Peripneumonia.*—The author has seen three cases of malignant or putrid pneumonia, so graphically described by Huxham. This is an exceedingly fatal form of pulmonic inflammation, almost always terminating rapidly in gangrene of the affected organ. Baglivi, in accordance with the observation of Hippocrates, says, that when patients affected with acute diseases of the lungs evince an urgent desire to set up, the prognosis is extremely unfavourable, and more particularly when there is a hissing sound in the trachea, a difficulty of expectoration, and an apparently good pulse. The truth of this observation was fully confirmed by the experience of our author. He never knew a patient to recover in whom this assemblage of symptoms occurred.

In genuine inflammatory pneumonia, the supervention of diarrhœa was generally a fatal sign, but in *bilious* pneumonia, the occurrence of such a discharge, unless excessive, usually proved beneficial. The author, has always found *active* purging in the former variety of pulmonic inflammation highly injurious, and this indeed accords with the observations of almost all who have expressed their sentiments on this subject. He is, however, less orthodox in the observation that emetics are dangerous in this disease. "Maloque consilio et etiam emetica apponuntur; id fere semper lethifero fit eventu: quod sæpius observavi." In peripneumonia notha,

according to the experience of many of the most eminent practitioners of the present and preceding times, emetics are often highly beneficial, especially after the inflammatory condition has been in some degree subdued, or where the stage of excitement has never developed itself fully from a tendency to oppressive venous congestion. Emetics are still more useful in pneumonia biliosa. Richter* speaks of them in the highest terms in the treatment of this disease, and says that they will often remove the excruciating pain in the thorax, as if by enchantment. We have also the testimony of Stoll† in favour of the employment of emetics in this disease.

Convulsions supervening in acute pneumonic affections are always to be regarded as an exceedingly dangerous sign. The author never saw a recovery from pneumonia, after convulsions came on. He very justly observes, however, that the prognosis in acute diseases of the chest is often attended with much difficulty and fallacy. As an instance of the fallaciousness of the favourable appearances in affections of this kind, he relates a case of pneumonia, which after some days of appropriate treatment appeared to be nearly removed, and convalescence was predicted in a few days. Suddenly, however, the patient was seized with violent rigours: the pain of the breast ceased, and fatal apoplexy immediately supervened. *Quis mortalium eventum tam lugubrem prævidere et divinare potuisset!* says the author.

When a short, dry cough remains, and there is much dyspnœa produced by rapid walking or by ascending an acclivity, after an attack of acute pneumonia, it is an evidence, says the author, that indurations have been produced in the substance of the lungs, and which tend soon or late to terminate in phthisis. The author met with many cases in which dropsy and pneumonia were associated. This agrees with the aphor-

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* Richter's Specielle Theraphie. Vol. I. p. 427.

† Ratio Medend. Vol. I.

ism of Stoll sec. 160. "Hydrops quoque nor rarus peripneumoniæ et pedisequens et comes."

Treatment.—The author speaks in the most favourable terms of the employment of opium and calomel in the treatment of this disease, as well as in other inflammatory affections. For this practice, he acknowledges himself indebted to Dr. Robert Hamilton.* He states, that when he first heard of this practice, it appeared to him in the highest degree objectionable, but that he was at last induced to employ it on the strong recommendation of the celebrated Vogel.† His first experiment with this remedy, he informs us, far exceeded his expectations, and he afterwards employed it, in nearly every case of inflammatory disease for more than twenty years, with decided advantage. "Prima pericula, he says, omnem longe superabunt expectationem meam: quare viginti abhinc annis et ultra non facile morbus inflammatorius mihi obvenit; et multi centeni mihi obvenere, cui *opium et calomel* faustissimo cum successu non opposuissem: *ast non stricte secundum præcepta Hamiltonii.*

After the general inflammatory symptoms had been in some degree subdued by bleeding and other antiphlogistic remedies, our author, almost uniformly prescribed one or two grains of calomel with one of opium, mornings and evenings, and in obstinate cases a similar dose at noon. In addition to this he applied vesicatories over the part affected, and ordered a decoction of senega and jalap, with camphor and muriate of ammonia. He rarely found it necessary to bleed more than three or four times.

We are fully persuaded that opium with or without calomel is a much more important remedy in inflammatory diseases than is generally admitted. In gout, dysentery, acute rheumatism, and pneumonia, we have frequently ordered this combination in large portions, with unequivocal advantage.

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* Medical Commentaries for the years 1783–84. Vol. ix. p. 191.

† Handbuch der pract. Arzneywissensh. 4 ter Theil S. 25 u. 23

It is proper to observe, however, that bleeding, and in general, purgatives and other antiphlogistic remedies should always be premised where the general inflammatory action is very considerable. With these preliminary measures, the use of the calomel and opium, in doses of from one to two grains each, twice, thrice, or even four times a day, will in general prove decidedly beneficial.

Dr. Armstrong whose testimony deserves great respect, speaks very highly of this combination in certain inflammatory affections. The paper of Dr. Hamilton on this subject, he says "deserves to be engraven in letters of gold."

Having given the general results of his experience in relation to the pathology and character of pneumonia, the author details sixteen cases of this disease, of which a few only appear to us sufficiently interesting for selection.

Case III. *Pleurisy speedily cured by the use of Calomel and Opium.*—A man aged thirty, of robust and athletic frame, was suddenly seized with chills, succeeded with febrile heat and a pungent pain in the left side. May 15. Complains of great pain in the head; the countenance is flushed; the tongue covered with a whitish and dry slime; the taste natural; no appetite; thirst intense; no cough; but the most vehement pungent pain in the left side. The pulse was frequent, hard, vibrating, full; the skin hot and dry, and the urine small in quantity and deep red. He was immediately bled to the extent of 16 ounces; and emulsion of gum arabic, with nitre and tartar emetic, was prescribed. An emolient cataplasm was laid on the affected side. The blood drawn was covered with a thick layer of size. In the evening the pain in the side was mitigated.

May 16th. The pain in the side, much increased; the heat of the skin intense; the thirst unquenchable; no cough; pulse frequent, large, hard and vibrating. Ten ounces of blood was drawn; and decoction of senega with nitre, camphor, tartar emetic, and simple syrup was ordered. In addition to these remedies two grains of *calomel and one of opium* were given mornings and evenings.

18th. An hour after the opium and calomel was taken the pain and oppression in the chest disappeared as if by enchantment, and an universal and profuse sweat broke out. He

could now breathe without difficulty or pain; the fever, also, soon abated very considerably.

19*th.* The breast entirely free from pain and oppression. The calomel and opium were continued until the evening of this day, when he was declared convalescent.

Case VI. *Pneumonia, with a pseudo-membraneous expectoration.*—The patient, a man aged twenty-one, was attacked with chills, succeeded by heat and a violent pain in the left side of the chest; the cough was troublesome, and the thirst excessive—the pulse was but little accelerated, small and soft. This case was treated like the preceding one, with bleeding, emulsion with nitre and camphor, blisters to the side, *calomel and opium, &c.* The case nevertheless proved fatal, and is introduced merely for the purpose of adverting to the expectoration of a *pseudo-membraneous* substance on the ninth day of the disease, similar to that which sometimes occurs in croup.

This membraneous exudation was cylindrical, hollow, and of considerable length. Pieces of the same substance continued to be spit up for several days afterwards. On the 12th day the patient died.

The expectoration of a membraneous substance is of very rare occurrence in pneumonia. Our author states that, so far as he knows, Morgagni is the only writer who distinctly mentions such a circumstance. Perhaps the case mentioned by *Tulpuis** is one of this kind. This writer states that a patient who was long affected with a troublesome cough, expectorated two considerable branches of veins—duos insignes venarum ramos, adequantes singulos expansæ manus magnitudinum. There can indeed be no doubt that these supposed "venous branches" were any thing else than indurated coagulating lymph.

An instance of a polypus substance, of branched form, coughed up by a boy affected with catarrh, is mentioned by Callisen.† Wichmann has noticed a similar case.‡ In the case mentioned by Strack (Hufeland's journal vol. vii. p. 162)

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* Observat. Medicinal. 1641. Lib. II. Cap. XIII. p. 118.

† Memoires de l'Acad. Royal de Chirurg. à Paris, 1774.

‡ Ideen zur Diagnostick 2, Band. p. 127.

we are left uninformed as to the character of the disease in which the membraneous expectoration occurred. He simply states that it was coughed up.

"Case VII. *Pneumonia suddenly ending in death from metastasis of the pectoral affection to the brain.*—A man aged thirty-two was attacked with fever and symptoms of pneumonia. He complained of a sensation of great oppresssion and anxiety in the breast; intense pain in the left side of the chest; respiration confined and small; cough with bloody expectoration; the tongue dry, and covered with a white mucus; thirst unquenchable; the heat of the body intense; pulse large, full, hard, tense, vibrating and frequent. V. sectio: and unc: XIV. decoct. ex rad. althæae, stip. dulcamarae cum nitro, tartar emet. liniment. volat. et cataplasm. emolient, ad pectus. Ptisana hordeacea cum oxymel. simpl. pro portu. In the evening the symptoms were considerably mitigated. On the succeeding night, however, they again became very violent. The bleeding was repeated; the blood was covered with a layer of size of unusual thickness. The pain now extended to the right side, præcordia and hypochondria; delirium supervened; the pulse became feeble, small and soft. *Calomel* and opii āā grj; mane et vespere; vesicatorium ad pectus. Next day he was much better. A profuse sweat appearing, the fever, cough, dyspnœa, weight and pain in the chest and abdomen, and the delirium disappeared "quasi arte magica." On the morning of the following day this favourable situation of things was entirely changed. On the preceding evening, as Dr. T. was informed, the patient complained of *cholic pains*; the night was nevertheless passed with tolerable quietness. In the morning he complained of much pain in the *malleolus* of the left foot, which was found in a state of erysipelatous inflammation. Some fresh herbs and salt were applied to the inflamed part by the friends. The patient now relapsed into an obstinate state of delirium, with continual restlessness and jactitation. He was soon afterwards seized with the most violent convulsions, attended with trismus and squinting; the pulse was small, hard and frequent. Sinapisms were applied to the ankles, and a vesicatory to the back of the neck, but to no purpose. He died on the succeeding evening of the same day on which these symptoms made their appearance. It must be observed that the inflamed part of the ankle could not be brought to suppurate by any means. A blister was applied, but the surface did not discharge as usual.

It is, also, to be noted that there was no mucous or puruloid expectoration in this case. This agrees admirably with the observation of Hippocrates, in the sixty-sixth aphorism of his prognostics.

Case XVI. *Pneumonia bilioso-nervosa.*—A robust man aged thirty-six, was seized with chills, succeeded by febrile heat, cough, a pungent pain in the chest, and cardialgia. On visiting the patient Dr. S. found him labouring under the following symptoms: pain in the head, particularly just above the eye-brows; great thirst; tongue moist and covered with a dark brown coat; constant eructations, of a bitter fluid; vomiting; great heat and tension in the pit of the stomach; frequent cough; expectoration bloody; pain in the right side very acute; great oppression in the breast; great lassitude and heaviness of the limbs; pulse frequent, soft, and rather full *(pleniusculum)*; interrupted delirium. An emetic of tart. antim. and Ipecac: was administered; which operated well, and brought off a great quantity of a bilious and fœtid fluid. The head-ache and delirium were entirely removed; the cardialgia mitigated, and pain and oppression of the breast slightly relieved; the debility was, however, very great; the pulse small, soft, frequent and scarcely perceptible under the finger. Sinapisms were now applied to the chest; and a solution of tamarinds and cremor tartar ordered for common drink. On the 5th day of the disease, the bitter taste had disappeared; and the tongue was less covered with sordes; the cough, however, was vehement and painful, and the expectoration mixed with blood. He felt himself a little stronger; the pulse was still, however, frequent, soft, and somewhat full; a gentle diarrhœa was caused by the tamarind and cremor tartar drink. On the 9th day, the cough was more troublesome, and the pain in the chest very severe; the fever, also, was considerably increased with anorexia, bitter taste, white tongue, retching, profuse night sweats, and great prostration of strength. Another emetic was now administered, followed by a cathartic mixture of sulph. soda and rhubarb. There was much bile thrown up; and all the symptoms of the disease were greatly mitigated. Gentle laxative remedies were continued for a few days longer, and the patient speedily convalesced.

Here, says the author, is an example of a disease, attended with apparently the strongest symptoms of an asthenic state, cured in a short time, by the employment of what are usually

considered debilitating remedies. "One of the most fatal errors in practical medicine, is the general position, that where there is debility, tonic remedies must be used; and that purgatives are improper in acute diseases, attended with extreme debility." Debilitas, says he, ex tam variis profluit fontibus, quam variæ sunt morborum causæ: quare curatio debilitatis semper causis ejusdem accommodari debet; et nullum datur remedium, quod indiscriminatim et ubique vires prostratas extollat atque reficiat.

Chapter II. In this chapter, the author gives an account of his experience in *pneumonia notha.* This variety of pneumonia, according to the observation of Richter,* depends on what he terms *false* or lymphatic inflammation; in which the bronchial glands, and the bronchial system generally, are more particularly affected than the vascular system. Mr. Puchelt, whose work we have reviewed in the present number, has advanced a very different and novel opinion, concerning the pathology of this disease. He thinks that the inflammation is seated in the *venous capillaries,*—that the disease consists of *venous* inflammation of the substance of the lungs and bronchial tubes. He contends that the *venous* capillaries are as liable to that morbid condition, which constitutes inflammation, as the *arterial;* and there is certainly no good reason to be alleged against this opinion.

We have not room for any of the cases of this variety of pneumonia related by the author; he extols the use of emetics, camphor, and vesicatories to the breast. In several cases he bled, but he dealt very cautiously with laxatives. In protracted pituitous cough, he observes, that he found sweet wine, as recommended by Sydenham, very useful. Cum vina acida acore tussim exasperent, *dulcia dulcedine, pectori amica, tussim demulceant et leniant.*

Chapter III. *Concerning occult pleurisy and pneumonia.*—This variety of pneumonic inflammation, is of a

* Speciella Therapie, vol. i. p. 425.

chronic character, and when neglected, almost always terminates in phthisis. It is commonly the consequence of acute pleurisy or pneumonia. The pain is generally felt in a small space of the breast, often not more than half an inch in diameter, radiating occasionally from this centre, in different directions throughout the chest. The patient coughs and feels some oppression in the breast. There is seldom any distinct fever; but a circumscribed flush usually appears on the cheek of the affected side.* The pain, cough and flushing of the cheek, are readily increased by waking, dancing, and the use of even small portions of spirituous drink. These exacerbations at first, readily subside, when the causes which excite them are removed; but they return on the slightest reapplication of these causes. By degrees these symptoms become more severe; they continue longer without abatement; distinct febrile exacerbations occur towards evening; finally, the expectoration is streaked with blood, and all the symptoms of confirmed phthisis, generally, speedily supervene. These insidious inflammatory affections of the lungs, are seldom attended to sufficiently early to admit of being cured. Our author thinks that this affection is more common with women than men. It rarely occurs in children, and in persons advanced beyond the fiftieth year. The principal remedies he recommends, are small and frequent bleedings; decoction of senega with nitre; camphor emulsion with nitre; calomel and opium, and continued blistering of the affected part.

Chapter V. *Some general remarks concerning pulmonic inflammation.*—This short chapter contains nothing particularly worthy of notice in this place. It is occupied, chiefly, by an estimate of the comparative merit of the ancient and modern modes of treatment in affections of this kind; and the result is, of course, in favour of the latter—we say, of course; for whatever may be said to the contrary, by the sticklers for the excellence of ancient things, there can be no

* Richter, Therapie, vol. i. p. 506.

doubt, that every department of human science is gradually advancing towards a higher degree of perfection and usefulness.

Chapter VI. *Concerning Empyema.*—Three cases of this disease are related by the author. The first case, is one in which the empyema was removed by expectoration. "Sæpius natura novum opus exorditur, ubi conatus nostri desiere," says Baglivi; and the present case is a strong exemplification of this remark. The patient, a boy about six years of age, troubled with worms, was attacked with pleurisy. When Dr. S. first saw him, he complained of violent and piercing pain in the left side, together with all the usual symptoms of well marked pleurisy. The parents obstinately refused to have him bled; leeches were ordered, but these could not be procured; Dr. S. then requested him to be cupped, but this also was objected to by the stupid parents. Under these circumstances, he was treated with the usual antiphlogistic remedies, and rubefacients to the chest; together with calomel and opium. The disease, however, became more violent. The cough was severe and dry; the inflammation passed into suppuration with the usual symptoms of this termination. No crises appeared, either by sweat, urine, expectoration, hæmorrhage or stool. Hective fever now came on; the pain in the chest became obtuse, with a sensation of fulness, weight and tension in the affected side; there was also tumefaction of this side of the chest; respiration was confined and oppressed; there were profuse night sweats; great emaciation; want of appetite; and an evident fluctuation was heard in the thorax on turning the body. He could lie only on the affected side,—and was constrained to sit up almost constantly. Under these circumstances there could be no doubt of the existence of *empyema.* Paracentesis was recommended, but rejected by the parents with unaccountable obstinacy. Cataplasms were then applied over the affected part, with a view to favour the passage of the pus externally. While these ineffectual applications were made, the boy was suddenly seized

with violent coughing, followed by an immense discharge of a yellowish inoderous pus from the lungs. The swelling of the side, as well as the pain and sensation of weight in the breast speedily subsided. The breathing also now became free. He gradually recovered, although for a considerable time after the discharge of matter took place, he manifested all the symptoms of phthisis pulmonalis. The second case of empyema related by the author, was connected with distortion of the spine; and was cured by means of an issue. The third case is an instance of empyema and vomica. The empyema was the consequence of an attack of pneumonia badly treated. When Dr. S. first saw the patient, he laboured under the following symptoms: Great emaciation; hectic; want of appetite; continual coughing with *purulent expectoration;* pain in the left side, about the ninth rib, increased by pressure; very great dyspnœa; watchfulness; and œdema of the feet. From there being purulent expectoration connected with the symptoms denoting empyema, Dr. S. concluded that there was a vomica connected with the empyema; and this most probably was the case. An issue was formed over the part in which the pain was felt. Some days after a soft and fluctuating tumor made its appearance where the issue was situated. An opening was made into this tumor, from which upwards of a pound and a-half of laudable pus flowed. Cinchona was diminished, and the abscess injected with a gently stimulating lotion. The patient recovered without difficulty. An issue was, however, kept in the affected side for two years.

Chapter VII. *Vomica expectoratione sanata.* Chapter VIII. *Polypus cavitatis pectoris, empyema simulans.* —We pass over these chapters, as not possessing sufficient interest to require a particular notice in this place.

Chapter IX. *Concerning Dysentery.*—In this chapter the author describes an epidemic dysentery as it prevailed with unexampled violence and fatality at *Mellen*, in the year 1800. The winter preceding the summer of this year was uncommonly tempestuous and cold; but the hot weather

commenced early in the spring, and continued with an uniformity unusual at this season, until about the end of May, when it suddenly became so cold as to freeze water. This low temperature continued until the 20th of July, when it suddenly changed to very warm again, although the nights remained cool. The districts, in which the disease prevailed, are high and hilly; furnished with abundant small streams of fresh water; and wholly free from marshes. The author observes that in the low and moist districts surrounding the elevated parts in which the disease prevailed, there occurred but very few cases of dysentery. The author considers dysentery to be an "introverted catarrh"—in other words, a rheumatic or catarrhal affection of the mucous membrane of the intestinal canal. In this opinion he is supported by the authority of Stoll,* Van Geuns,† Plaulizky,‡ Vogler,‖ Richter,§ Frank,¶ and Vogel.** He gives the following cases in evidence of the correctness of this view of the pathology of the disease. A woman was affected with a severe catarrh: suddenly this disappeared, and a violent dysenteric affection immediately supervened. A man laboured under symptoms of catarrh with cough, and on these disappearing he was suddenly attacked with dysentery. A girl having been affected for some days with excruciating rheumatic tooth-ache, was immediately taken ill with the most violent inflammatory dysentery on the former affection ceasing. A gentleman on being freed from a severe dysenteric affection, was immediately attacked with ophthalmia and rheumatic pains in the knees. "Dominus quidam dysenteria liberatus illico ophthalmia atque rheumate genuum maxime doloroso invadebatur:

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* Ratio Medendi T. III. p. 247.

† Ueber die epidemische Ruhr.

‡ Medicensch-practische Beobachtungen. 2. Samml. § 55.

‖ Von der Ruhr.

§ Medical and Surgical Observations. vol. i. p. 86.

¶ Epitome de cognosc. et curand. hom. morb. lib. V. pars. II. p. 494.

** Handbuch d. pract. Heilkunde. part VI. p. 124.

alteri, dysenteria cessante, ophthalmia e vestigio consecuta est; tertio, dysenteria sublata; continuo supervenit rheuma capitis universale: puella, silente dysenteria confestim rheumatismo omnium articulorum incessebatur, alteri idem contigit."

In the commencement of the disease, when the vital powers were not yet much depressed, and there were no signs of intestinal inflammation present, the author always began the treatment with an emetic, for which purpose he employed ipecacuanha. Emetics, he thinks, are beneficial in this disease; 1st. by opposing to the intestinal irritation, a counter excitement in the stomach: 2d. by removing the constriction of the cutaneous vessels, and promoting insensible perspiration: 3d. by removing from the stomach irritating substances, whether of indigested food, vitiated secretions, or gastric sordes. By the employment of one emetic only he often succeeded in arresting the progress of mild attacks of bilious dysentery. After the operation of the emetic, he gave laxatives; preferring for this purpose the *artificial castor oil* of Vogler,* or a solution of tamarinds and manna, with glauber salts. Concerning the artificial ol. ricine, he says: "multis cum eo factis experimentis faustissimis ejus amore captus, artis consortibus id in casibus similibus tuto commendare possum. In dysenteria mulcet dolores, compescit vehementem intestinorum excitationem, obvolvit acrimonias atque eas blande evacuat."

Having evacuated the stomach and bowels, Dr. S. prescribed the *nux vomica* according to the directions of Hufeland.† He directed from two to two and a-half grains of the extract every two hours. This article, he says, generally relieved the tormina very much, but he thinks it sometimes increased the tenesmus. Along with this remedy he gave mucilaginous

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* This is made as follows. ℞. Resin jalapæ, gr. ix. Sapon. venet. gr. ii. Diligenti triturationе in mortario lapideo solvantur cum ol. olivar ℥jss. Dosis pro adulto est cochleare magnum omni hora aut bihorio.

† Journal der Pract. Heilkunde, Jena, 1795. I Band. § 112.

drinks as copiously as the patient could take. But his principal reliance was placed on opium; "hac divina, manuque experta administrata, potente medicina." The employment of opium in dysentery after proper evacuations, is not only free from pernicious consequences as has been apprehended by many practitioners, but, on the contrary, highly beneficial, and not to be neglected without exposing the patient to much pain and distress that might be advantageously relieved by its use. Sydenham regarded its employment as indispensible in disease: "Ita," says he, "necessarium est opium in hominis periti manu, ut sine illo manca sit, ac claudecit medicina.*" Dr. Armstrong observes, that although opium tends to constipate when taken in health, yet when the bowels are inflamed or highly irritated, as they are in dysentery, its tendency to this effect is much less than might be supposed, and when alternated with proper laxatives often aids considerably in bringing off stercoraceous stools. It must be always recollected, however, that this article should be very cautiously employed where the febrile symptoms run high; and that its beneficial effects can only be expected after the excitement has been somewhat reduced by antiphlogistic measures.

Our author invariably directed the abdomen to be well rubbed with some rubefacient. In cases of a highly inflammatory character, or in what he calls enteritic dysentery, bleeding was practised in the commencement of the disease with great advantage. Some patients were bled four or five times in the course of a few days. After the inflammatory symptoms were sufficiently reduced, he gave in many instances opium with calomel, in repeated doses. He also directed emolient cataplasms to be applied over the abdomen in the highly inflammatory cases; or in some instances vesicatories.

The author saw five cases in which enteric dysentery was associated with a nervous condition of the system (*consociata cum statu nervoso.*) The alvine evacuations in these cases

* De Dysenteria, anni 1660.

were exceedingly frequent; there was continual retching, and vomiting; excruciating tormina; great prostration of strength, the disease terminating rapidly in sphacelus. "Nullum servare valui," says the author.

In many instances the disease assumed a malignant character, attended in the latter stage with hæmorrhage from the mouth and nose, and with petechiæ. In these cases the patient complained of a bitter taste; the tongue was covered with a yellow or blackish coat; there were no tormina. Heat of the skin intense; great prostration of the vital powers, from the very commencement; pulse small and scarcely perceptible, tympanites; constant discharges of putrid fœces; hæmorrhage, petechiæ, &c.

Chapter X. *De Arthritide.*—The author considers arthritis as a variety of gout; and ascribes its production to a depraved condition of the digestive and assimilative functions. He ascribes the proteiform appearances of this disease, as it manifests itself when located in the various parts of the system, with great accuracy and neatness. He has at different times known it to assume the shape of cardialgia, colica, strangury, blennorrhœa, apoplexy, cephalalgia, otitis, opthalmia, neuralgia, angina, glossites, pleuritis and hæmoptysis.

Arthritis is sometimes connected with fever; but it appears also frequently without it. The arthritic fever occurs under a great variety of modifications, simulating in its phenomena, inflammatory, gastric, nervous, or putrid fever. Chronic arthritis, however, occurs much more frequently than the acute form of the disease. An exceedingly dangerous occurrence in arthritis is the sudden translation of the disease from an external part to one or more of the important internal organs. The author has met with many examples of this kind. In one case disease was suddenly translated from the right knee, to the lungs; the patient was immediately seized with hæmoptysis, from which he did not recover. Arthritis has a peculiar tendency to fall upon the organs of respiration,

the tongue, fauces, stomach, intestines, urinary bladder, and heart.

The author gives the history of sixteen cases of this disease, only a few of which, however, we can notice particularly.

Case I. *Arthritic Pneumonia.*—"A woman aged forty-three, of a delicate constitution, was attacked, in January 1797, with the following symptoms: chills and rigor, followed by great febrile heat, and a severe pungent pain in the left side of the chest; cough, at first dry, but in a few hours after attended with bloody expectoration: great oppression and sense of weight in the breast; sensation of great heat internally; pulse frequent, strong, tense and vibrating. She was bled to the extent of ten ounces: and decoct. ex rad. jalap. cum nitro et oxymelle, was prescribed as an internal remedy. The affected side was bathed with volatile liniment every two hours, and an emolient cataplasm applied to it. The blood was covered with size; on the third day the pain in the chest was more excruciating than ever, and the pulse as before: she was again bled eight ounces; and a grain of calomel and opium ordered twice a-day. The blood was still covered with a layer of size. On the fourth day, generally, there was diaphoresis, and the pain and oppression in the breast and bloody expectoration entirely removed; *but the joints of the left hand and fingers were inflamed, swollen, and extremely painful.* Dr. S. now felt convinced that the disease was a case of arthritic inflammation of the breast. He accordingly now prescribed a decoction of burdock-root, and dulcamara, with camphor and extract of aconitum; with fomentating applications to the affected hand. The calomel and opium were continued as before. On the second day after this occurrence the pain and swelling disappeared from the hand, and settled upon the right knee, and after having successively invaded various joints, the disease finally disappeared entirely, the urine, at the *time becoming very turpid*, and the skin moist and soft over the whole body."

Case III. *Chronic arthritic pleurisy.*—A woman aged twenty-eight, of an exceedingly slender frame and delicate constitution, having been suddenly exposed to a cold atmosphere when in a state of perspiration, was affected with violent arthritic inflammation in various parts of her body.

Six months after this attack Mr. S. saw her, and found her in the following situation: extreme debility, attended with violent arthritic pains in the joints of her extremities; great emaciation; constant watchfulness; tongue clean and taste not depraved; very little appetite for food; much thirst; occasionally afflicted with severe pain in the stomach; much flatulency; alvine and urinary discharges nearly natural; no pain in the breast, except an occasional gnawing pain in the region of the heart; slow fever; pulse one hundred and twenty in a minute; the extremities rigid and painful in the extreme. In this state she had been for five months when Dr. S. first saw her. She was ordered a nourishing diet, with a small quantity of good wine; and decoction of cort. peru. and quassia, with elixir of vitriol and extract aconiti. Her body was wrapped in flannel. On the second day after this, the pain changed its situation, and fixed upon the clavicles, sternum, jaws, occiput and back of the neck, and was attended with great oppression in the breast, and a total absence of sleep. The same remedies continued, with the addition of warm pediluvia. In a few days afterwards the arthritic pain became concentrated in the breast; the dyspnœa was extremely distressing, and the weakness greater than ever. Ten days after first prescribing for her, she still complained of oppressed respiration, tension and pain in the region of the heart, with indescribable anxiety of feeling. The pain in the region of the heart now gradually increased, and was aggravated considerably by external pressure.

There was considerable cough; an inability to lie down, or sit up; excessive thirst; the pain in the breast recurring in paroxysms of the most intense violence. At the same time that these pectoral affections were assuming the most aggravated character, the arthritic pains and swellings in the hands, fingers, clavicle, neck and scapula, disappeared. Pulse one hundred and thirty in a minute, tense, large, hard and vibrating. Rubefacients were applied to the affected part of the chest, with a diaphoretic mixture composed of vin. antim. camph.

spirit. mind. internally. *Five* leeches were also applied to the thorax over the region of the heart; and on the succeeding day a large vesicatory was laid on the breast. In a few days after this she appeared to be considerably relieved of her pectoral complaint, but the arthritic pains again returned to the hands, clavicles and back of the neck. Calomel and opium were now given, with the diaphoretic mixture just mentioned. She appeared to be recovering rapidly for several days; when all at once the pain in the breast returned with extreme violence, attended with great oppression, tension, and anxiety in the region of the heart. The fever also became very violent; the pulse being one hundred and twenty-five, full, hard and vibrating. Six ounces of blood were drawn from the arm, by which slight alleviation was procured; on the pain and distress in the chest returning, however, she was again bled next day to the extent of seven ounces. The blood in both instances was covered with a thick layer of size. She now gradually recovered under the use of calomel and opium, and a variety of diaphoretic remedies.

In looking over this case we cannot but be struck with the inefficient manner in which bleeding was practised, although unequivocally indicated by the symptoms enumerated. When the pulse was "full, hard, tense and vibrating;" and the pain in the chest extremely severe, attended with great oppression, the author after hesitating much, and recalling to mind the admonition of Celsus, "præstare anceps remedium experiri quam nullum," ventured with trembling hand, to apply *five leeches to the side of the chest!*—"quinque hirundines lateri dolenti, tremula manu applicavi;" and afterwards, "secundo effectu sanguinis evacuationis per hirundines factæ animatus et excitatus,"—to draw *six* ounces more of blood from the arm; and to repeat the bleeding on the succeeding day to the extent of *seven ounces!* E.

ART. V.—*Transactions of the Associated Apothecaries and Surgeon Apothecaries of England and Wales.* London, 1823.

As it is with us a principal object to condense, into the pages of our journal, as great a variety as possible of that which shall both entertain and instruct our readers, we would here present them with an analysis of a work, which we deem rich in matter of this character. It is admirably calculated to give us an idea of the state of medical science generally, in Great Britain, since it is made up of the joint contributions of that class, who are there most actively engaged in the duties of the profession, and who have the most ample opportunities to test principles by practice. The present volume is intended as the first of a series; it, therefore, makes a most profound obeisance to the public, in an introduction of one hundred and forty pages. This is followed by an interesting essay, on the education and duties of the general practitioner. We shall, however, unceremoniously make our way into that part of the volume, which we think will be most agreeable to the general taste of our readers, and we trust it will not pall upon their appetites, if we should cut "a huge half moon, a monstrous cantle out."

The first article, which we would notice, is a very interesting case communicated by James Johnson, M. D. which, as it is brief, we give entire.

"*Case of Chronic Inflammation and Accretion of the Pericardium to the Heart.*—About the middle of April 1821, I was requested by Mr. Golding, of St. Martin's Lane, to visit with him Mr. Bewley, a dentist, in Duke Street, St. James's, who had lately come to town from Portsmouth, where he had resided for some years. For several months past he had been in bad health, and was considered by his friends and medical attendants as threatened with pulmonary consumption. He had cough without expectoration, febrile movements in the system, and progressive emaciation. Occasionally, however, he was attacked with arthritico-rheumatic affections of the joints, and at these times the pulmonic phe-

nomena almost entirely disappeared. Shortly before I saw him he had had a severe inflammation, apparently, of the respiratory organs, for which Mr. Golding bled him copiously, and treated him very judiciously. A sudden translation now again took place to the joints, and the thoracic symptoms had just vanished when I first saw him. We ordered him to take thirty minims of the vinum seminis colchici thrice a day, keeping the bowels open, and putting him on the most rigid regimen. In three days he found himself almost entirely free from complaint, began to sit up a little, and was quite in high spirits. In the midst of this rapid convalescence he was seized with apoplexy, and hemiplegia of the *right* side. He was now bled, blistered, cupped, purged, and had sinapisms applied to the lower extremities. In forty-eight hours he began to evince symptoms of returning sensibility, and in two or three days more knew his friends, and even answered questions, though with considerable difficulty. He continued to give hopes of recovery from the immediate danger of apoplexy for six days, when he fell back again, became comatose, and died about a week from the apoplectic attack.

"We obtained permission to open the body. The vessels of the head were gorged with blood, and there was some effusion between the tunica arachnoidea and pia mater. In making the incision for the centrum ovale, we came to a rent in the *right* posterior lobe of the cerebrum, containing a clot of blood, of about an ounce. The laceration communicated with the lateral ventricle of that side, which was filled with blood, as also the other lateral ventricle, the third, and the fourth ventricles.

"In the chest, the lungs might be pronounced sound. There were adhesions between the pleura costalis and pleura pulmonalis of the right side, and an effusion of a few ounces of serum in the left cavity of the chest. The pericardium and parites of the heart were so completely accreted together by chronic inflammation, that the scalpel could not separate them without cutting one or other structure. There was no other organic leision to be seen.

"During the time I had an opportunity of visiting this gentleman, there was always a strong action of the heart in its proper region, but no pulsation in epigastrio. The pulse was regular, but generally tensive, even after considerable evacuations from the vascular system. In this case, it will be observed, that the hemiplegia was on the same side as the ruptured vessel in the brain; but the blood had found its way into the opposite ventricle.

"To me it appears, that the disease was, from the beginning, chronic rheumatic inflammation of the pericardium, which had at last completely glued the two layers (cardiac and pericardiac) into one dense membrane. I have seen several cases of this description, within the last six or seven years, and I suspect they are much more frequent than medical men imagine. What could have produced the last and fatal determination to the brain, I know not. Could the removal of the rheumatic inflammation from the joints by the colchicum have any share in its production?—"Plura de hoc morbo non addo, cum mihi neutiquam placeat, nec placebit unquam, longis verborum ambagibus nucleum involvere."

SYDENHAM.

We would have this case particularly noticed, as illustrative of a *principle*, viz. the correspondence existing between parts composed of the same simple textures, although remote from each other. The capsule of the heart is a fibro-serous membrane, and so also are the capsules of the joints. We are the more confident of the correctness of the principle, because it was a subject of our own observation, before we had seen it noticed by any author. We recollect to have heard from an intelligent practitioner, the relation of a case, in which there occurred a remarkable translation of disease, from a dropsical joint to the pericardium, producing effusion and death. We regarded this as something unique, till a few days after, we were called in counsel in a case which exhibited nearly the same phenomena. The general diathesis, which is calculated to influence morbidly any particular texture will, if repelled from any portion of this texture, be more likely to develop itself in some other portion of the same, than in a tissue characterised by different properties. We know that many would cut, at once, a gordian knot of pathology like this, with the two edged sword of *sympathy*. For our own parts, we are content to follow a more humble example, and like honest Slop, first to try to undo it. We have long since thrown that magic word upon the same cobwebbed shelf, with the "*vis medicatrix*," "*phusis*," "*ethereal fire, &c. &c.*

The subject of the next article is one of great interest, and we think the writer has done it ample justice. In our analytic extracts we shall endeavour to embrace every thing necessary to the integrity of the subject, and we therefore permit the author to speak for himself.

"*On Venous Congestion*, by *Thomas Sandwith*.—Diseases of the mucous, serous, and cutaneous surfaces, constitute the greater part of the disorders of the human body. Their characters are generally simple, and the diagnosis and treatment consequently well understood. The most obscure diseases are those which are situated in the substance of the brain, the lungs, and the liver. I exclude from this enumeration the alterations in the valvular textures of the heart and great vessels, which, being mechanical, are in general easy of detection. The cause of this obscurity depends upon the peculiarity of the blood-vessels of each organ, and their vascular connexion. The brain, in addition to many remarkable plexuses of veins without valves, is furnished with the longitudinal and lateral sinuses, which appear to be reservoirs to secure the organ from pressure, and accommodate it to the variations in the state of the circulation, to which it is hourly accustomed. Perhaps the cavities of the heart perform a similar office for the lungs; at all events, their connexion constitutes a striking peculiarity: and the venous structure of the liver, veins transmitting to the heart all the blood that is distributed to the viscera of the abdomen, performing too a secretory function, and being destitute of valves, modifies and obscures its diseases.

"In those remarkable deviations from health, which originate in the operation of some unknown poison upon the blood, and which are called *fevers*, the effect of these peculiarities is very apparent. The balance of the circulation is destroyed for a time; and if the contagion has been powerful, or the constitutional peculiarities favourable, a more permanent accumulation of blood in the venous system takes place, which if not speedily fatal, is succeeded by imperfect attempts at reaction; constituting a class of fevers, first distinctly unfolded by Dr. Armstrong, and by him called *congestive* fevers. The features of these anomalous forms of fever are clearly defined; but it is not my intention to tread on ground preoccupied by so masterly a mind. I shall endeavour to point out some of those congestions of the venous system, which have fallen under my own observation, unconnected with idiopathic fever.

"A striking peculiarity in these diseases, whether they originate in general plethora or local accumulation, is the apparent debility which attends them. They are all, more or less, characterised by relaxation of the cutaneous and mucous surfaces. Hence we find the skin covered with a clammy sweat; the urine pale and abundant; vomiting sometimes, and commonly a watery diarrhœa. These appearances of debility are often fallacious, and in a practical point of view are liable to mislead.

"1. When we consider that the veins are passive organs, and that the motion of the blood they contain depends upon the vis à tergo, in other words, upon the power of arteries, *congestion of the brain* is very likely to happen. When the arterial system is either naturally feeble, or in a state of atony from previous excitement, this condition of the organ does occur; assuming the characters of apoplexy, mania, delirium tremens, epilepsy, and hysteria, according to the predisposition of the individual. Keeping in view the phenomena of these diseases when they depend on arterial excitation, the difference is readily perceived.

"The arterial system of drunkards, probably when the stomach is impaired, is always in an atonic condition. Inflammation in such subjects never produces a contracted wiry pulse, as in sounder constitutions; and from this condition of the arteries, as one would expect, they are subject to venous congestions. One of the most striking is *delirium tremens*. Dr. Armstrong thus describes it: "This disease most frequently occurs in *habitual* drunkards, and especially when, after repeated fits of intoxication, they suddenly lessen or leave off their ordinary stimulus for a time. The first feelings of indisposition are, lassitude; indistinct chills; loathing of food; uneasiness in the head; disturbed short slumbers; anxious countenance; and oppression at the pit of the stomach; and these are followed by retching or vomiting; white moist tongue; wildness and quickness of the look; weak rapid pulse; general irritability; watchfulness; tremors of the hands, and dampness of the skin increased by the slightest exercise. Confusion of mind, or forgetfulness, supervenes, which passes on to a state closely resembling mania.*" It is unnecessary to produce examples of an affection so common. The specific power of opium in this disease is a cogent argument in favour of the opinion that it depends on venous congestion.

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* Armstrong on Typhus, &c. p. 275.

"Syncope is the most complete form of venous congestion, and fainting from loss of blood is often attended with convulsions. It is not improbable, therefore, that *epilepsy*, sometimes at least, depends on congestion of the brain. The known efficacy of tonics in this disease is a further reason in favour of the opinion, if there is any truth in the axiom, that 'contraria contrariis medentur,' and experiment is a surer guide to truth than opinion. Morbid anatomy also is in its favour. According to Morgagni, in some cases of epilepsy, 'the most penetrating inquisition cannot detect any lesion of the structure of the brain.*' And when we consider the phenomena of the disease, the proof will be complete. A case which occurred to me in a hernial patient is thus described: 'There was evident sensorial disturbance. Her eyes glistened, she was quick in her answers, and her conversation was incoherent and absurd. This was a favourable opportunity for the renewal of the taxis, but the attempt was ineffectual. During the operation, the *countenance fell*, the *lips became livid* and convulsed, her eyes were inverted, foam issued from her mouth, and her whole frame was shaken by convulsions. This alarming state of things continued half an hour, when her senses returned.†' I have also witnessed a case which depended on the irritation of a worm in the stomach.

"It is notorious that irritable and feeble subjects are those most subject to *hysteria*. The disease is also, according to the experience of Sydenham and subsequent observers, generally curable by tonics and stimulants. It must, therefore, in many instances be ascribed to venous congestion of the brain. That it frequently depends on arterial excitement, and is curable by blood-letting, is also true. Putting, however, this species out of view, many of the symptoms can be explained on no other supposition than the one assigned, now that neurological hypotheses are exploded. The most striking of these is *clavus*, a circumscribed sense of pain and pressure on the top of the head, obviously dependent on an overcharged state of the longitudinal sinus, and instantaneously removed by a cordial. To this remora in the circulation is to be ascribed the oppression about the præcordia, and also the immoderate flux of tears, and of pale urine, which are marked symptoms, and may be regarded as indirect efforts of nature to relieve the

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* Morgagni Epistola de Epilepsia.
† Obs. in Med. and Surgery, p. 118.

oppression. In delicate females we occasionally see more serious diseases warded off by a copious flow of tears. When the Roman poet describes his heroine,

> "Sanguineam volvens aciem, maculisque trementes
> Interfusa genas, et pallida morte futura,"

we acknowledge the hand of a master; but when shortly afterwards she is

> "Paulum *lacrymis* et mente morata,"*

the poet has drawn from his own imagination, and not from nature.

"Whether the doctrine of venous congestion of the brain will explain the phenomena of the other diseases of the nervous system, as choræa, tetanus, and hydrophobia, other observers must determine. My experience does not enable me to decide the question. It is worthy of remark, however, that the resemblance of hydrophobia to hysteria has been pointed out by Dr. Powel.†

"2. From the head to the chest the transition is natural and easy, and here the most striking example of venous congestion is the disease called *angina pectoris*. Its characters are strongly marked, so as to form a standard of comparison, and the causa proxima capable of demonstration. In a case which occurred to me, these were the symptoms. Case 4.—'Mr. J——, formerly a butcher, aged sixty-two, of a robust habit, and sanguine temperament, has sometimes had symptoms of angina pectoris. He is looking extremely pale. When he walks, a violent pain arises in the middle of the sternum, crosses the breast, and runs down each arm; the shoulders feel as though loosened from their sockets, and he is compelled to stop instantly. A vomiting sometimes succeeds. The complaint frequently comes on in the night-time. When he sits still, he feels no disorder.

"'The pulse is above one hundred, soft, and intermits every fifth or sixth pulsation.

"'He was bled three times, and the blood was sizy.

"'He died suddenly, while in the act of giving some direction to his servant rather hastily.

"'*Dissection.*—The pericardium and the heart were thickly covered with fat. Both the coronary arteries were ossified, and in some places become mere capillary tubes. The morbid

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* Virgilii Æneidos, lib. IV.

† Med. and Physical Journal, vol. xx. p. 201.

process extended to the smallest ramifications. The heart itself was pale and flabby, and soft, like boiled beef. The mitral valves were altered by disease, as were the semilunar valves of the aorta. The aorta itself exhibited marks of inflammation. There were no adhesions in the chest, and the lungs were sound.'

"One would naturally expect, that when the arterial system is weakened by profuse and protracted hæmorrhages, congestion of the right chamber of the heart and lungs would occur; that we should have, in short, a disease analogous to *angina pectoris.*

"3. For anatomical reasons we have already stated, the liver is more subject to venous congestion, than any other organ; and congestion of the liver, as will be seen, is the root of many other serious disorders in the remoter parts of the system; a fact which has indeed been recognised by many observers, who have, however, contented themselves with the simple statement of the observation, without pointing out the way in which the effect was produced. Many of the diseases which are merged in the unmeaning appellation of bilious disorders, dyspepsia, &c. are at bottom, examples of venous congestion of the liver; and still more which are regarded as primary affections, and treated as such, are in reality diseases of the liver.

"In the simplest form, venous congestion of the liver is denoted by paleness of the face, livor around the eyes, indigestion, dejection of spirits, and fæces without bile. The function of the large intestines is irregular, and costiveness alternates with diarrhœa. If the affection is not removed by the efforts of art or nature, the general disorder increases, and the oppression is occasionally removed by the supervention of the disease called melæna; a discharge of venous blood per anum of the colour and consistence of tar. When this salutary effort does not remove the disorder, or suggest the proper treatment, new diseases spring up in various parts of the body, as will be seen hereafter.

"Occasionally venous congestion of the liver is quickly succeeded by inflammation of the organ, an important consequence, which I shall endeavour to illustrate by an example. Case 6.—This patient was a female in the seventh month of her pregnancy, who consulted me on account of an attack of melæna. She had a slow, weak pulse, some headache, relaxed skin, pale urine, and pain in the loins, which last symptom I attributed to her situation. As she was unwilling to be bled, I prescribed calomel and saline purgatives. During

three days the symptoms were unchanged. On the fourth, she had a decided attack of hepatitis. She could lie on neither side without augmenting a severe pain in the epigastrium and right side. It was painful on pressure, and she could neither inspire nor yawn without great suffering. There was also evident pyrexia, with red urine. Three bleedings cured her. I have witnessed many cases in which there was not a symptom of pyrexia. The most striking effects of venous congestion of the liver are witnessed in the disease called *cholera morbus*, a frightful and often fatal distemper in warm climates. In this country, in hot summers, it is occasionally so. In the cases which have occurred to me, the disease put on two characters. In one form the skin was cold, pale and livid, the pulse feeble, and the discharge of bile by vomiting and stool immense. In others, instead of the latter symptom, all secretion from the organ was suspended, and in addition to the relaxation of the mucous and cutaneous surfaces, there was vomiting and purging of fluid matters. In all cases the most dreadful cramps were present.

"Congestion of the liver, by impeding in its course the volume of blood that is distributed to the abdominal viscera, is also, as we have remarked already, productive of diseases in remote parts of the system. Pulmonary diseases are often seen in connexion with congestion of the liver; and the commonest form it assumes is bronchitis chronica, a disease admirably described by Dr. Armstrong.* This connexion has also been pointed out by Drs. Philip and Hastings. As might be expected, pulmonary consumption is no infrequent consequence. In his lectures, Mr. Abernethy relates a striking example, which occurred in his coachman's wife, who was apparently in the last stage of phthisis, and who recovered by the use of medicines which produced tar-like evacuations from the bowels. The case of Mr. C. is one in point. After a tremendous inflammation of the lungs and pericardium, his recovery was retarded by congestion of the liver. The disease put on the aspect of phthisis, and his stools manifested no secretion of bile. Eventually a diarrhœa of tar-like offensive matter came on, the function by the liver returned, and his recovery was then rapid and complete. All observers have pointed out the connexion of *gout* with a morbid condition of the liver, of which indeed it may be regarded as the natural cure. These vicarious diseases vary with the predis-

* Armstrong on Consumption, p. 178.

position of the individual: accordingly we sometimes see the head, the organ that is soonest called into sympathetic action; and the consequences are *hypochondriasis*, or apoplexy. Of the former disease, I have witnessed several examples, where the mental affection was strongly marked. The abdominal excretions being black, or dark green, denoted the condition of the liver; and the affection of the head, in addition to the mental disturbance, was denoted by headache, heat of the head, and flushing of the face. There was, however, no distinctly formed pyrexia. In one example a discharge of black matter from the bowels was preceded by a rigor which resembled an ague-fit. Cases of melæna combined with *apoplexy*, are not uncommon. In two cases which fell under my observation, in addition to *coma*, the face was flushed, the head burning hot, and the blood and pulse indicated fever.

"4. As the *treatment* of many of the diseases we have enumerated has been long settled on the sure basis of experience, our remarks on this part of the subject will be very general. Indeed, in the present state of medical practice, there is more room for showing the rationale of many of the practices which have been handed down to us by our fathers, than for the addition of any new ones. It is, however, an indirect proof of the soundness of pathological speculations when they square with the established methods of cure. The fatal examples of Cullen and Brown should deter us from deviations in practice on theoretical grounds.

"We have remarked that the remora occasioned by venous congestion of the larger organs, as the brain and liver, gives rise to an increased action of the arteries; and hence it is, that this condition of the organ is in no long time complicated with inflammation. Indeed, a state of venous congestion precedes and alternates with all pyrexiat diseases, and is characterized by coldness, paleness, and shiverings. It is called by nosologists the cold stage, to distinguish it from the reaction which ensues. It is worthy of remark, that sometimes, from constitutional debility, the stage of reaction is never established; and the patient dies with all the symptoms of venous congestion. In typhus and scarlatina this is not uncommon.—In hot climates, it is in this primary stage, and this only, that remedies are availing in fevers and inflammations. During this short prelude to the storm, copious bloodletting, the warm bath, &c. moderate the reaction, the violent efforts of the heart and arteries to restore the equilibrium of the system; otherwise the squall, as Dr. Rush emphatically calls it, lays the system prostrate, and disorganizes some of the

vital organs. On this principle, then, the necessity of blood-letting in venous congestions of the graver kinds is obvious. At the same time, such is the state of what we will call debility, for want of a better term, that unless cordials are previously administered, and the patient put into a warm bath, a sufficiency of blood cannot be abstracted. In this climate, in such diseases, a succession of smaller bleedings is safer than one full evacuation by the lancet. In all the cases which have occurred to me, every succeeding venesection has been borne better, and has been larger than the one that preceded it; accurately noting in the phraseology of pathologists the decrease of debility, but in correcter language the diminished oppression of the venous system.

"Although in the minor forms of venous congestion, cordials are sufficient for their removal, in the graver forms they are quite inadequate. The lever is not long enough to lift the load, and it cannot be lengthened, inasmuch as stimulants excite only in certain quantities; beyond this limit they act as debilitants. In the illustration of the lever and the load to be removed, if we cannot lengthen the one, we must lighten the other; so in these diseases our only resource is, to relieve the oppression of the veins by a careful abstraction of a portion of their contents.

"We have seen, that in cases of venous congestion, the extreme vessels, the exhalants as they are called, are in an atonic state, and hence it is that the skin is supple and bedewed with a clammy sweat, the stomach nauseated with vitiated secretions; that there is often watery diarrhœa, and always an excessive flow of pale urine. Even the secretion of the liver is changed, and sometimes the effect upon the salivary glands produces a salivation. The indications arising from these symptoms are obvious: the warm bath; frictions of the surface; purgatives; mercury sometimes, and medicines which tranquillize the stomach, complete the catalogue of remedies for venous congestion."

The next article which we shall notice is a paper *On the Utility of Opium, in Certain Inflammatory Disorders*, by John Armstrong, M. D. *Lecturer on the Principles and Practice of Physic.*—The high reputation of this gentleman will suffer nothing from his pen to pass without notice.

Although the title of this article may appear, to some, to contain a paradox in principle and practice, yet, that opium

does exert an influence, in *some* inflammatory affections, beyond the merely temporary relief of irritation and pain, has been noticed by many. The principle, however, can not be safely admitted till it be accompanied with diagnostic criteria, which shall clearly designate the cases, or the periods of disease, in which this remedy, otherwise so equivocal, may be safely employed. We no longer regard all inflammations, as resolvable into merely the tonic and the atonic, but wherever they occur and are not obviously produced by a local cause, we presume the existence of some constitutional diathesis or morbid peculiarity, qualifying the *general* character of increased or diminished action. We ought not, therefore, to be satisfied with employing those remedies which are applicable merely to one or the other of these classes, but must subjoin those which are calculated to subvert the diathesis. There may be a class of inflammatory diseases, then, for which opium may be the appropriate, secondary remedy.

Another view, however, may be taken of this subject, and to which our author seems to incline. The specific action of opium on the system may, when depletion has rendered the vascular action controllable, be counter to inflammation generally, and hence a *general remedy*, if employed in the proper stage of the disease.

We proceed to give such an analysis of our author's remarks, on this subject, as shall develope his opinions.

He observes, that his attention was first particularly called to this use of the remedy in question, by noticing the comparative results of several cases, in which, after bleeding, opium had been adventitiously employed, and others in which this remedy had been omitted.

The inference which he drew was such, that he says: "I determined to administer opium in future more boldly, in those cases which appeared most promising for its favourable effects. Within the last four years, I have prescribed large doses of opium, conjointly with blood-letting, in at least one hundred cases of acute and sub-acute abdominal inflammation, proceeding from common causes; and as its efficacy has con-

siderably exceeded that of any other remedy tried under similar circumstances, I shall endeavour to point out in this paper, first, those circumstances, and secondly, the most efficacious doses.

"It were superfluous to observe, that abdominal inflammations vary in their seat and degree. In conjunction with blood-letting, full doses of opium have been most useful in acute inflammation of the peritoneal coat of the bowels or of the stomach, of the peritoneum more strictly so called, or of the uterus, and next, in acute inflammation of the kidneys and liver."

The author gives a sketch of the characteristic symptoms of these differently located inflammations, and then observes:

"In all these acute inflammations, once completely developed, there are two stages, namely, one of excitement, and another of collapse. In the former stage, the heat continues higher than natural, and the pulse more resisting, as well as quicker, and though the strength be oppressed, it is not really subdued; whereas, in the stage of collapse, the heat falls below the natural standard, first on the extremities and then on the trunk, while the pulse becomes less resisting than natural, and usually more frequent than in the stage of excitement—the strength being then really subdued, as evidently appears from the feebleness of each inspiration and expiration. It is in the first only of these stages that medical agents are, generally speaking, at all efficacious. In acute inflammation, the usual duration of this stage is from three to seven or eight days, sometimes shorter, and occasionally a little longer, especially when seated in the liver or kidneys; but if the inflammation be less, if it be naturally of the sub-acute form, or if it be rendered so by artificial means, it may last many days, for example, from fourteen to twenty. The sub-acute form of inflammation is distinguished from the acute, by the pain and fever being less urgent in the first, which thus differing in degree, has a more protracted course, and consequently allows more time for the favourable operation of the remedies applied. On this account there is less immediate occasion for the employment of opium in the sub-acute form, though it will be found highly useful in lessening its duration.

"In acute inflammation of the peritoneal coat of the stomach or bowels, and in what are termed acute peritonitis and hysteritis, I always make a point of seeing the patient bled in the first stage, to complete relaxation, to approaching syncope,

whatever may be the quantity of blood necessary to produce that effect; for it is to the effect, and not to the quantity, which we must look for relief in such formidable cases. As soon as ever the patient recovers from the faintness, three grains at least of good opium, in the form of a *soft* pill, are given and quietness is strictly enjoined, that, if possible, sleep may be obtained. In some instances I have ordered a less quantity of the opium in a solid form, but have added sufficient of the tincture to make the dose equal. This method is preferable in highly irritable habits, because the sedative influence of the opium is thus more speedily procured. The effects of opium thus administered, are to prevent a subsequent increase in the force or frequency of the heart's action, and a return of the abdominal pain, while it induces a tendency to quiet sleep, and a copious perspiration over the whole surface. In many instances, this simple procedure will remove the inflammation at once, nothing being afterwards necessary, when the patient awakes, but spare diet, absolute rest and quietness, with an occasional mild laxative. But on all occasions, if possible, I visit the patient about three or four hours after the administration of the opium, and if there be pain on pressure in any part of the abdomen, with a hot skin, and quick jerky pulse, I order the patient, in my presence, to be promptly bled again in the same decisive manner as before. Some physicians commit a great, a fatal mistake in the treatment of acute inflammations, by dictating on paper, that a certain, a determinate quantity of blood must be taken away, and then they walk about their business, as if all were done that ought to have been done. What an absurdity, what a strange violation of duty, does this conduct involve! In the first place, a great deal of time is commonly thus lost, which is so precious in all acute inflammations; in the second, the determinate quantity of blood, set automatically down, may have no effect in removing the inflammation; and I repeat, it is solely upon the *effect* produced that the benefit of blood-letting depends, and therefore the effect should always be witnessed by the physician. It is the only safe guide. After this second abstraction of blood, carried again to complete relaxation, I generally prescribe about two grains of opium with three or four grains of calomel, exhibited in the form of pill, as the faintness disappears. The patient is again left in perfect quietness, and refreshing sleep, with free perspiration, most frequently succeeds. A third venesection is rarely requisite, but if, after the expiration of five or six hours from the second, pain and fever still exist, the operation should again be performed as

before, and one grain of opium with two or three grains of calomel given almost immediately afterwards; while half a grain of the former, with two grains of the latter, may be repeated every four hours till sleep and general perspiration be induced. It is repeatedly observed in my works, and the observation was made long before their appearance, that the specific effects of mercury are easily procured when large quantities of blood are abstracted under its administration. For this reason, the calomel should be given with proportionate care, whenever copious and repeated blood-letting becomes necessary."

The author deprecates the use of drastic purges in these cases, and repeats Dr. Saunders' remark, that the best way to open the bowels is by the lancet. He recommends, also, the employment of clysters of warm water to aid in this object. When the peritoneum is the seat of the inflammation, however, he thinks that cathartics are not so objectionable. In acute hepatitis he recommends the conjoined use of calomel with opium and saline purges. So strong is our author's conviction of the value of his favourite remedy, that he observes:

"So great indeed is my confidence in full doses of opium in peritoneal enteritis, that if compelled to say, supposing myself the subject of the disorder, whether I would exclusively rely upon them solely, or upon blood-letting solely, I should certainly fix upon the former; at the same time I should like to have the simultaneous influence of both remedies, being convinced, that they are far more serviceable combinedly, than separately employed."

The author also refers to the experience of other practitioners:

"Though in the country my success was considerable in what is vaguely called puerperal fever, yet under the same treatment in London, namely, bleeding and purging, I am fully persuaded that a great many patients would have been lost. Women are much more irritable in London than in the country, probably on account of their more sedentary and artificial habits; and by consequence they are much more liable to that reaction of the heart and general irritation, which are so apt to follow copious bleeding in them, and which ap-

pear to renew the inflammation when allowed to advance, but which may almost invariably be controlled, by full doses of opium given at the precise juncture before mentioned."

He observes that caution is to be used fully to subdue the vascular excitement, when the brain is particularly affected:

"As opium has a specific effect on the vessels in the head, great care is necessary in its exhibition, when the brain is affected. One lady whom I attended, the wife of a medical practitioner, laboured under what is denominated puerperal fever, a few days after delivery. In her the uterus, peritoneum, liver, and brain were all at the same time inflamed. She had been bled once copiously when I saw her, without any decided relief. By my orders she was bled a second time to complete relaxation. Before this blood-letting, her tongue was as dry as a stick in the centre, but it became moist under the operation; and as all signs of inflammation were removed from the brain, I therefore prescribed a full opiate immediately afterwards, and with the best effect."

On inflammations of the chest, and of the membranes generally, he remarks:

"In several cases of acute inflammation of the pericardium, of the pleura, and of the substance of the lungs, I have tried the large doses of opium after copious venesection, with similar benefit as in the acute abdominal inflammation before mentioned; but it is a practice which I would not be understood to recommend in inflammation of the mucous membrane of the bronchia, an affection which requires, in many instances, the greatest circumspection as to blood letting, and in which those measures which act simultaneously on the bowels and on the skin are singularly useful. Where the heat on the surface is universally high in bronchitis, and the pulse at the same time expanded and resisting, I have found moderate venesection very serviceable; but when the heat is subdued, and the pulse small and compressible, I have generally avoided it altogether, and trusted to the forementioned means, with an antiphlogistic diet, and a regulated temperature. One of the leading advantages of what might be called anatomical physiology is the ascertainment of the different structures and functions of adjacent parts; and another of the leading advantages of what might be called anatomical pathology is the different results which are displayed, by an accurate examination of those parts after death. But minute observation of the rise,

progress, and decline of the symptoms, together with an exact register of the effects of remedies at these different periods, are still necessary to enable us to turn our anatomical physiology, and our anatomical pathology to great practical account. It appears to me, that the French, generally speaking, excel the English in anatomical physiology, and in anatomical pathology; but it also appears to me equally certain, that they have not observed either the symptoms, or the effects of remedies so accurately as we have done, and the English therefore really excel them in the precise application of remedies. But this remark is only referrible to those physicians in this country, who, observing and thinking for themselves, merely deem symptoms the indications of disease, and strive to connect them, as closely as possible, with the condition of different parts of the body upon which they depend; for it must be admitted, that those practitioners who still pursue the nosological method of affixing to certain symptoms an abstract name without a knowledge of the condition with which they are connected,—it must, I repeat, be admitted, that the practice of such men is mere empiricism, similar to that which the public passively adopt and dangerously apply from tradition

"Acute inflammation of the mucous membrane of the small or large intestines is by no means so common as acute inflammation of the peritoneal covering, except in certain epidemic constitutions; but when attacks of this form exist in the villous lining, copious blood-letting, so far as I have observed, followed up by full doses of opium, will generally cut short the inflammation at once, or reduce it to a sub-acute form, which will yield soon afterwards to milder measures. Sub-acute inflammation of the mucous membrane, especially of that portion which invests the small intestines, is exceedingly common as an original affection in this country, both among children and adults. It is generally denoted by an obscure pain in some part of the abdomen increased under pressure, and accompanied by a quick soft pulse, a hottish skin, a slightly furred tongue remarkably red at the top, and a short way thence round the edges, while the stools, from an increased mixture of mucus, most frequently have an oleaginous sort of consistence, and are somewhat darker and more offensive than natural. In the London Fever Hospital I have had a great many opportunities of pointing out this particular form of inflammation to my pupils, and also of showing the great efficacy of small or moderate doses of calomel conjoined with a few grains of rhubarb, and assisted by a little cold-drawn castor oil. The

French pathologists have overlooked the general connexion which a disordered state of the liver has with sub-acute inflammation of the mucous membrane of the intestines. Wherever this connexion exists, small or moderate doses of calomel, united with mild laxatives, will be found highly useful, seemingly by gently dislodging the morbid accumulations in the bowels, and particularly by increasing a flow of bile, from which, probably, the blood finds a readier access through the liver, and thus influences the circulation of the splenic, the superior and inferior mesenteric veins, and their ramifications. In all cases, however, of this complicated nature, I have applied leeches to the abdomen, and repeated them as long as there was any pain on pressure; and experience has taught me that they may be employed preferably to general blood-letting in most sub-acute inflammations of the mucous membrane of the bowels. In such examples, the blandest and sparest diet is necessary, for any deviation in that respect is apt to maintain the inflammation, in defiance of the best remedies. The more we attend to minutiæ in the general management, which involves diet, temperature, quietude, and other points, the more shall we be convinced of their vast importance in determining the results of our practice. In fevers which proceed from peculiar causes, such as malaria, and the specific contagions, sub-acute inflammation of the mucous membrane of the small intestines, particularly of the lower portion of the ilium, is by no means uncommon; but, as in the acute forms of such inflammation, it may be laid down as an axiom, that opium is prejudicial, while the tongue continues dry. Besides, in such cases, the brain and bronchial lining are often sub-acutely inflamed at the same time, a combination which contra-indicates the administration of this medicine.

"If we wish to arrive at any thing like just principles to guide us in the application of remedies, we must discard suppositions *à priori* on the subject, and minutely note not only all the circumstances under which any particular remedy is given, but all the effects which it produces; for the same remedy produces such different effects under different circumstances, that it might be regarded, practically at least, as a different agent, so powerful is the modifying influence of special conditions of the system."

The volume also contains an article on the suture of the cleft palate, by Thomas Alcock, Surgeon, accompanied with a plate illustrating the manner in which union was effected.

The same operation has recently been successfully performed by Dr. Smith of New Haven, who will shortly furnish us with an article on this subject. We do not know that, except in these two cases, the operation has ever been attempted. The influence which the suture of the lip is observed to have, in effecting the approximation of the divided portions of the palate, would indicate the more complete success of applying the force directly to this part.

ORIGINAL DEPARTMENT.

ART. I.—*Supplement to an Essay on Digestion.* By N. R. SMITH, M. D. Professor of Anatomy and Physiology in the Jefferson Medical College of Philadelphia.

IN a recent attempt at something, on the subject of digestion, more conformable than the present theory, to opinions now entertained in relation to life, and to the principles which have obtained in other branches of science, I did not promise myself, or the public, more than to call their attention to some important defects, in the principles of the hypothesis which is so generally and tacitly received.* At the same time, however, I did not despair of being able to suggest something, not heretofore advanced, which should, in part, supply the deficiency that might result from successfully maintaining the above objections. Although I may have manifested a degree of earnestness in advocating my opinions, I trust that my remarks no where betray a confidence that I should at once overthrow that, which has been the work of so many hands, and upon which rests the property of so many speculators in physiology and pathology. Such being my anticipations, therefore, the reception, with which the essay has

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* See Preface to the Essay.

met, can not but be highly gratifying. That it should be deemed worthy of consideration, in opposition to the mass of opinion which sanctions the present system, is the highest degree of immediate success which can be anticipated for an attempt of this kind. But I know that, in the minds of many persons of discernment, the circumstances which are there concentrated upon this subject, have given rise to a train of inquisitive reflection that has been by no means unfavourable to the opinions which I have endeavoured to substantiate.

They have been led to appreciate the inadequacy of the mode of reasoning, which has been generally employed in relation to the functions of life, and which was alluded to in the following words:

"When we confine our inquiries to any particular science, with the laws of which we are acquainted, and reason from an effect to a cause, which in its operations we know to be controlled by those laws, there need be no fallacy. But if we enter another field of science, the laws of which we have not investigated, and reason from an effect to a cause, we shall almost certainly fall into an error, for we unconsciously attribute the effect to a cause with the operations of which we are familiar. Thus, if we combine two inorganic substances, and after a time, observe that a remarkable change has taken place in their properties, we at once, and with propriety, attribute it to the influence of chemical affinities; for we know that such substances are exclusively under the control of physical properties. But if we convey certain substances into the stomach of an animal, a polypus for instance, and upon removing them after a considerable time, discover that they have become very much changed, having received new chemical and sensible properties, it is altogether unwarrantable to infer that these changes are wholly the effect of chemical influence; for, as the stomach of this and of every other animal is indued with certain vital properties, and as we are not yet fully acquainted with their laws or uniform habits of action, we can not say how much, in this instance, is to be attributed to their influence.

"That similar effects, then, in any particular science are referrible to the same cause, is generally true; but that similar effects in two distinct sciences, the cause being known in one, are referrible to the same cause, is, in principle, false."

And again, "Experiments upon living animals, with a view to multiplying facts in relation to life, appear to characterise the researches of the present day. That these under some circumstances, and performed with proper precaution may yield useful matter, is undeniable; but it is necessary to their success that we should, to a certain extent, be acquainted with the properties of life, and laws by which the exertion of them is governed; otherwise, we do not know what effects they may be capable of accomplishing, and are in danger of attributing the results of our experiments to causes with which we are more familiar. The little progress which has been made in physiology by the multitude of these experiments, confirms what I have stated. We perceive that experimentors, who may even essentially differ in opinion, find no difficulty in substantiating their favourite notions, by the same series of experiments."

The equivocal character of many of the experiments which have been relied upon, and their inconsistency with each other; the extreme difficulty of demonstrating any solvent powers in the gastric liquor out of the stomach, and even the absolute impossibility of doing it, in the hands of some of the ablest chemists, who were, nevertheless, believers in its agency; the equivocal tendency of the post mortem erosions of the stomach; the inconsistency of the experiments of W. Philip with the common hypothesis, irresistibly proving, by the immediate suspension of digestion which follows the division of the eighth pair of nerves, that there is something beyond chemical agency; the same effects being produced by any sudden emotion of the mind, or other cause which may be supposed to divert nervous influence from the stomach, are all circumstances which we know have been appreciated as of no small weight.

The supposition, too, that so important a change is so *rapidly* wrought, and upon so large a volume of matter, must have appeared inconsistent with the analogy of other assimilative processes. The want of uniform characteristic properties in the chyme, and the fact that chyle resembling that of the lacteals is not found in the intestines, I believe have had

their weight, as have also the objections drawn from the anatomy of organs concerned in digestion, the inadequacy of the thoracic duct to the performance of the functions attributed to it by the theory in question, the redundancy in the magnitude and structure of the liver, and finally the want of any peculiarity of structure in the mucous membrane of the stomach, corresponding to the peculiar and extraordinary function attributed to it, viz. the secretion of the gastric juice.

I cannot but flatter myself, from the opinions which have been expressed, that the circumstances brought together, as warranting my position that a portion of the aliment is taken up by the extreme veins and in them prepared for a still greater change in the capillary system of the liver, have been favourably appreciated. Among these it will be recollected, by those who have perused the essay, are, first, the fact that the absorption of *some* substances by the veins, is unquestionably performed, as proved by Majendie and others; second, the effects of the division of the eighth pair of nerves; third, the analogy between the digestion of plants and of animals; fourth, the digestion of some of the lower orders of animals, in which nothing like gastric juice can be detected; fifth, the fact that all the subsequent stages of assimilation are effected in capillary vessels, as well as all the other changes which are wrought upon the circulating fluids; sixth, the circulation of the vena portæ, which hitherto has not been satisfactorily accounted for; seventh, the structure and anatomical relations of the liver, which, by our hypothesis, is redeemed from its comparative physiological insignificance; eighth, the phenomena of the fœtal circulation, and the analogy existing between the nourishment of the fœtus by the veins of the placenta, and nourishment after birth by the veins of the stomach and intestines; these two systems of capillaries being opposite extremes of the same continuous vessel, the vena portæ, from one extreme of which to the other I suppose the function of digestion to be transferred at the time of birth.

I could not flatter myself, however, even if I were so for-

tunate as to have adopted the explanation of these phenomena, which is, in the main, true, that it was at once wrought into an unobjectionable shape, or undeformed by error. The circumstances under which the materials of the essay were brought together; the limited opportunities which I enjoyed of intercourse with enlightened members of the profession, and of access to the original memorials on this subject, a constant routine of laborious country practice, and, in winter, the responsibility of a course of lectures on anatomy, without even an assistant in my dissecting, would have precluded this, though the nature of the subject were susceptible of it. Subsequent impartial inquiry, however, has confirmed my confidence in the general correctness of the principles advanced. At the same time I frankly acknowledge, that there are some important deficiences, which resulted from my not having properly appreciated certain circumstances hostile to my opinions and friendly to the theory of the gastric juice. On examining the details of the experiments in relation to this subject, performed by Spallanzani, Gosse and Stevens, I am satisfied that there is a greater change wrought upon the contents of the stomach, through the *medium* of the fluids contained in it, than I had been led to suppose. I trust, however, to make it clearly appear, that this change is not wrought by the chemical action of a fluid, possessing the remarkable properties attributed to the gastric juice; but that the secretions of the stomach are not necessarily remarkably different from the saliva, or the mucous secretions of other parts. In the essay I hinted that the aliment might be, before absorption, resolved, by the *powers of life*, into its proximate or ultimate principles. None of my positions are inconsistent with such an hypothesis. On the contrary, the mode of reasoning there adopted, and the principles advanced, although they are incompatible with the idea of a chemical solution taking place in the stomach, nevertheless, harmonise admirably with the supposition that this may be effected, in some way, by the vital powers. That I have sub-

scribed to nothing which would preclude inquiry into the changes which life may effect upon the aliment, while yet in the stomach; and that the logic, which I employed, left me completely at liberty to prosecute such an investigation, and even prompted to it, is apparent from the following:

"We cannot, by them, accurately determine, how much is the effect of physical, and how much of vital properties, until we know something more of the powers of the *latter.* It would, therefore, be more profitable, if we were to direct our attention to inquiring what degree of control *they* exert over the phenomena of life, rather than to inquiring how much influence the chemical affinities have over the same."

Perhaps it is already anticipated, that I would attribute the effects, which are produced on the aliment in the stomach, preparatory to absorption, to the nervous influence of that organ, using the exhaled fluids as merely a medium of transmission.

The vague conjectures which were thrown out by some of the earlier physiologists concerning the subtile fluid, which they supposed to pervade every part of the nervous system and to serve as the missive agent of volition and sensation, are to be regarded as the result of a habit of thought, unconsciously acquired by observation of natural phenomena, by which it becomes almost impossible to conceive of the relation of cause and effect, between two substances, without presuming some material intercourse. Nothing, however, analogous to this imperceptible principle, had yet been discovered in physics; hence, when, by the employment of the inductive philosophy, the mode of reasoning on these subjects became more rigid, the idea of a nervous fluid, or any other subtile agent, which could neither be felt nor seen, was regarded as an unwarrantable assumption. It is a little remarkable, however, that even the fastidiousness of the inductive philosophy could not reject language of similar import, though more abstracted. It has never been considered illogical to speak of the transmission of nervous influence; but

who can use this language, without conceiving an idea of the passage of something material? Experimental philosophy itself, however, soon detected in physics, subtile principles, corresponding to the nervous fluid of life. Aeriform elementary bodies were evolved, imperceptible to most of our senses, and rather characterised by the effects which they produced upon other and more palpable substances, than by any sensible properties of their own.

The discovery of the electric principle, so obscure in its nature but so remarkable in its effects, was a momentous intellectual achievement in this department of science. The galvanic modification of this principle had accidentally been discovered to have a remarkable influence over the organs of life. From certain effects produced by it, upon the muscles of animals recently dead, Galvani and others were led to suspect the identity of this fluid with the agent of nervous influence, or, at least, its resemblance to it. This *rationally* revived idea of the existence of a nervous fluid, supported by so strong an analogy, and even by experiment, would, at that time, have been more regarded, had it not shared the odium which had fallen upon the unfounded speculations of the earlier writers on this subject.

It was not till recently, that the experiments of Wilson Philip and others, compelled the more particular attention of men of science to this subject; employing the inductive philosophy to establish, upon the imperishable basis of fact, an hypothesis, which it once properly rejected, because, then, it was neither an axiom nor an induction from the analogy of the collateral sciences.

The experiments, which are chiefly relied upon, as proving the identity of the nervous influence with the galvanic fluid, or, as is only conceded by most physiologists, its resemblance to it, are, first, the application of the latter agent to the nerves of animals after their connection with the brain has been destroyed, or immediately after death, before the muscles may be supposed to have lost their susceptibility of contrac-

tion, and which is found to produce powerful contractions precisely similar to those effected by the agent transmitted from the will. The same effect is not produced by any other extraneous agent. From this absolute *identity* of result, we may, at least, safely infer a *similarity* of cause.

Second, the substitution of the galvanic fluid for the nervous influence in the functions of the stomach and lungs, as was apparently effected by Philip. To accomplish this, he first divided the eighth pair of nerves, and on comparing the result with the ordinary phenomena of digestion, he found that the process of assimilation was completely and immediately suspended. He then connected one pole of the galvanic battery, with the stomachic extremity of the divided nerve, the other with the region of the stomach, and immediately the functions of the organ were resumed. From comparing this condition of the stomach, with that in which the galvanic battery was not employed, and also with that in which the nerves were not divided, he satisfied himself of the sufficiency of the galvanic fluid, as a substitute for nervous influence, and hence inferred their identity. He supposes, however, that it is only indirectly that the nervous and the galvanic fluids influence digestion, by promoting the secretion of the gastric juice. A little reflection must, as I think, convince us that this inference is by no means necessary, nor indeed warrantable. He does not arrive at this conclusion, from having actually seen the secretion of the gastric juice to be suspended by the division of the nerves; not from having compared the quality and properties of the fluids secreted, in both cases; but from the *presumption* that the function of digestion can be affected by it in no other way. Such a conclusion is incorrect, because, not fully knowing the nature and influence of the vital powers, he does not know but that the interruption of them may influence digestion in some other way, even although we grant that the gastric juice is essential to digestion.

The above inference of Mr. Philip, obviously rendered it

necessary for him to presume the indispensibility, every where, of the nervous fluid to secretion. It is here that Mr. Philip's doctrine is vulnerable, and here it has been successfully attacked by Mr. Brodie. This gentleman has proved by a series of experiments, and in the most satisfactory manner, that the nerves are no more essential to secretion than they are to circulation. Mr. Brodie, I know, goes still further, and infers the fallacy of Mr. Philip's observations, in regard to the interruption of the digestive process, by the division of the gastric nerves. The statement of the latter gentleman, however, in relation to the *final* effect witnessed by him, is so substantiated that it can not well be denied, and although some of Mr. Brodie's experiments may appear, at first view, to render his results equivocal; yet Mr. Philip has in reply, as I think, satisfactorily pointed out certain circumstances, necessary to a complete interruption of the nervous influence, which were not fully attended to by Mr. Brodie. Besides, we have, in confirmation of Mr. Philip's observations, certain natural phenomena, which bear a strong analogy to the effects supposed to be produced by the division of the nerves. Sudden and deep emotions of the mind, violent exercise, the infliction of extreme pain, causes which make a powerful impression upon the nervous system, and therefore may be supposed to divert nervous influence from this organ, are found to interrupt at once the digestive process. Mr. Philip's statement, therefore, with regard to the final effect which results from the division of the nerves, is probably correct; but there is another circumstance, which contributes to invalidate his supposition that it is accomplished by interrupting the gastric secretions. We are compelled to admit, that the change which the food undergoes in the stomach, may take place remotely from the *surface* of the organ, where the fluid in question is exhaled. We are compelled to admit, too, that it will even take place in hollow balls, perforated with small holes, through which the supposed solvent fluid can only get access slowly. Hence it is certain that it must

take place simultaneously through the whole mass, by the medium of the fluid which has been for some time accumulating. Neither Mr. Philip, nor any one, who advocates the theory of solution by the gastric fluid, will deny that this fluid does accumulate in the stomach. Indeed, all their arguments are either built upon, or imply the presumption that it often exists, in quantity, in that organ. This being the case, then, Mr. Philip's supposition, that the division of the nerves interrupts digestion only by suppressing the secretion, is obviously inadequate. He states that digestion *immediately* ceases after the division, and we know too, that the same effect immediately follows emotions of the minds, but if the effect results only from the suppression of the secretion, it is obvious that the solution ought not to be *immediately* suspended. If, after the secretion of the fluid, the process is chemical, as is stated, it surely ought to be continued, at least for a time, although all vital influence be withdrawn.

The above experiments, therefore, and the natural phenomena which we have mentioned, irresistibly prove, that the nerves have *directly* an important influence upon the process of digestion. But shall we say with Wilson Philip, that it is through the agency of a fluid identified with the principle of galvanism? If the subject be viewed with candor and in its proper light, I think that even this position can not be regarded as absurb. It is unphilosophical to reproach the advocates of such an opinion, with attempting to pry into the forbidden secrets of nature, and of wasting their intellectual efforts upon that which is unattainable. Let it not be supposed that they are attempting to develope the essential nature of matter, of causation, or of life; but merely to interpose other links in the chain of sequent causes and effects.

When we look back, and trace the progress of the mind to the present state of our knowledge, when we see it following the flight of comets, weighing the sun in a balance, measuring the velocity of light and imprisoning the lightnings of heaven; when we see it dividing and subdividing the ancient

elements into subtile principles, of the nature of which no anticipation could have been formed, and, at each step, evolving new agents which enable it to act still more minutely on the atoms of matter, what presumption is it not to determine what it shall be unable to accomplish hereafter? The innate propensity to inquiry, which we possess, will not suffer us to remain satisfied with our acquisitions, while there exists any circumstance, that may lead us to a more intimate acquaintance with the secret agents, by which matter acts upon matter. The mind should not be too much hampered with definitive rules, which, as our knowledge advances, may be found altogether inadequate to its powers; nor should it be hedged in and limited in its sphere, lest it encroach upon venerable dogmas. *Truth can never be hostile to the interests of man, nor to the dignity of human nature.*

Besides that we have the experiments and the opinions of one of the most logical physiologists of the present day, and these confirmed by others, there are further reasons why the identity of the nervous and galvanic fluids is not to be regarded as an absurdity. It is certainly not improbable, that *animal life* may employ agents equally sublimated with those which pervade inanimate matter, and which confer upon that its physical constitution or *material vitality.* Not improbable? is it not a *fact* beyond the reach of sophistry, that in some instances, at least, the electric fluid is one of the instruments of life, and that the employment of it is under the controul of the nervous system, as in the torpedo and electric eel? The voluntary phosphorescence of the fire-fly, and other insects, is equally illustrative of our principle.

It is not necessary, however, that I should further vindicate the opinions of those who have assumed the above position. I only claim that the two fluids bear a strong *analogy* to each other, in their mode of operation and in their effects. In this I am supported by the observation and opinions of nearly all the physiologists of the present day. Cooke, in a

very learned work on the physiology and pathology of the nervous system, observes as follows:

"That nervous influence may depend on galvanism, or some other modification of electricity, has been lately, with several physiologists, a favourite hypothesis. The subtilty of the galvanic power, the velocity of its motion, its action on muscles through the nerves, and the means of diminishing, extinguishing,* and renewing the susceptibility of animals to its influence, are circumstances alleged in support of this doctrine. Professor Aldini, from his experiments, infers that a peculiar etherial fluid is continually generated in the animal economy; that it is connected with the functions of life; and that as there is a metallic pile, composed of metals and fluids, so there is also an animal pile, consisting of living animal substances. Dr. Valli remarks, that substances which conduct electricity, are likewise conductors of the nervous fluid; and substances which are not conductors of electricity, are not conductors of the nervous fluid.

"Mr. Good, after adverting to the opinion that oxygen may be the cause of fibrous irritability, and observing that it was never conceived altogether competent to the production of muscular motion and sensation, says: 'Hence other gases have alternately been glanced at, as affording the chief forms of this recondite and attenuate power. Electricity has been principally studied with this express view; and the study has, at length, been crowned with a success, which, though by no means perfect, opens to us, perhaps, the way to perfection. In consequence of the experiments of Cotugno, Vassali-Eandi, Galvani, Volta, and many other celebrated philosophers, it has ultimately been demonstrated that animals are capable of generating or exciting an electric aura in their own bodies, as well as of receiving it from without; that this electric aura is possessed of all, or nearly all, the properties of common or metallic electricity.† The mode by which the body, or rather the nerves, become possessed of this mysterious and truly spiritual aura, is still doubtful. That it is rather received from the surrounding atmosphere than communicated by our food, is, I believe, generally admitted; and hence, like caloric

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* Both the galvanic and nervous power are destroyed by an exposure to sulphuretted hydrogen gas, carbonic vapours, &c. See account of experiments on galvanism, in the supplement to the Encyclopædia Britannica, vol. i. p. 681.

† Good, vol. i. p. 412.

and oxygen, it commonly enters into the system in the act of respiration, and forms a constituent part of the calor ventusque vitalis of the poet.* Fishes, he adds, absorb atmospheric air in general, not by the lungs, for they have none, but by gills, which answer their purpose; and several of them, as the torpedo, gymnotus electricus, and silurus, secern the galvanic aura, of which it contains the basis, not by the brain, but by an organ which enables them to secern it in a much larger quantity, and at will; an organ which is a natural voltaic pile, and like the voltaic pile, enables them to communicate it, in an aggregate state, to other animals, upon contact, in the mode of sensible and often very severe shocks.'†

"Speaking of the galvanic and electric auras, which he considers as the same, Mr. Good says: 'It is almost reduced to a certainty, that this common aura constitutes the nervous fluid; and, in man, at least, it should seem therefore to be secreted from the brain, and hence diffused over the body by the course of the nerves.'‡

"Mr. Carlisle, in a communication with which he has favoured me respecting the nature of the nervous power, says: 'The facts elicited by galvanic discoveries, added to the former proofs of electrical discharges from the nervous systems of the gymnotus§ and torpedo, and these genuine electrical sparks being clearly issued at the voluntary discretion of those animals, formed a series of leading points, very promising of some improvements in the knowledge of the brain and nerves; but no such result has yet occurred which might become applicable to the healing art. I have long entertained suspicions that both animal volition, and the more remarkable secretory changes, are governed by electricity, and have ventured to mention those conjectures in the two Croonian Lectures, printed in the Transactions of the Royal Society of London, for the years 1804 and 1805; but any conclusive inductions to be drawn from such intricate and multifarious phenomena, require more extensive researches and more undivided attention than I am able to bestow."

Good remarks as follows: "Whatever be the nature of the

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* Lucretius. † Good, vol. i. p. 413. ‡ Ibid, p. 119.

§ "A particular adaptation for the nerves which supply the electrical batteries of the torpedo and gymnotus, Mr. Carlisle says, is observable on the exit of each from the scull; over which there is a firm cartillage acting as a yoke, with a muscle affixed to it, for the obvious purpose of compression; so that a voluntary muscle probably governs the operations of the battery."—*Phil. Trans.* 1805. p. 11.

active and etherial fluid which was thus traced by Stuart, and has since been fully established by Galvani, there can be no question of its having a powerful influence upon many branches or divisions of the nervous system, though not upon all. Its effects upon the muscles of an animal for some hours after death are too well known to be particularized: and Dr. Philip seems to have shown, by various trains of experiments,* that it is equally capable of maintaining respiration, and the operation of several of the animal secretions, especially those that induce digestion, for as long a period. But in drawing from such facts the corollary that the 'IDENTITY of galvanic electricity and nervous influence is established by these experiments;' he seems to proceed farther than he is warranted: for we have no right to say more, than that galvanic electricity is a stimulus exciting the nervous influence into a state of continued secretion, or continued action; which may possibly be done by various other stimuli, as well as by that of galvanism."

And again: "This, however, is not mere conjecture: for in different ramifications of the nerves, we can trace such different effects actually produced; and as it has sufficiently appeared that the operative power is a quick and subtle fluid, we are directly led to conclude that such difference of effects must depend on a diversity of fluids, or on various modifications of a common fluid in different ramifications: the last of which explanations is by far the simplest and easiest."

Mr. Abernethy has said, that he considers it already demonstrated that they are electrical actions, which cause the various combinations and decompositions, so constantly occurring in all parts of the body. Sir Everard Home expresses a similar opinion.

Some recent writers have suggested, that the nervous fluid is electricity brought under the control of life, and divested of some of its properties; becoming, what they denominate animal electricity. There is, indeed, something peculiar in the electricity of the torpedo and the gymnotus, since it has been ascertained that it can not be conveyed by a metallic conductor, nor will influence the most delicate electrometer. These

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* Phil. Trans. 1815. p. 5—90.

are circumstances which explain the failure of a great many of those experiments by which it has been attempted to demonstrate, unequivocally, the presence of this fluid in the system.

It is now, I believe, well ascertained and generally admitted, that chemical affinity is merely a modification of the electric principle. That chemical compositions and decompositions are greatly controlled by it, and that its presence renders those substances active agents, which before were apparently inert, no one will deny. For the sake, however, of illustrating the analogous offices of the nervous fluid, or animal electricity, I will quote an experiment of Sir Humphrey Davy.

"A few globules of mercury are placed in a vessel containing common pump water; or any water that contains a small quantity of saline impregnation; wires from a battery of one thousand double plates, not very strongly charged, are introduced into the vessel opposite to each other, so as to reach the bottom; as soon as the circle is completed, the mercury will be violently agitated, each globule will become elongated towards the positive pole, but will retain its circular outline in the part opposite to the negative pole; oxide will be given off from this part, which is positive, but no hydrogene from the part which is negative, and the oxide will pass in a rapid current from the positive towards the negative pole. As long as no hydrogene is given off, the globule is in continued agitation, and a stream of oxide flows with great rapidity from the positive to the negative surfaces; and the negative surfaces of the mercury approach rapidly towards the positive, which are at rest; if the conducting power of the water is exalted by the addition of more of the saline impregnation, or if the charge of the battery be increased, hydrogene will be given off from the negative poles; and the instant this happens the globules become stationary; as if the same power which gave motion to the mercury was neutralized by, or employed in, the evolution of the hydrogene. There are many other remarkable phenomena connected with the operation of electricity on mercury, in contact with water; which may be urged in favour of the idea, that chemical and electrical attraction depend upon the same cause, and which will possibly lead to new views respecting the ele-

ments of matter; but the consideration of them properly belongs to a more advanced division of this work."

Since, then, between the nervous influence of life and the electric principle of matter, there is such an analogy as almost amounts to identity, and since it is absolutely certain that the electric fluid is capable of establishing an active relation between substances, which before were perfectly inert with respect to each other, giving to water, for instance, the power of acting upon, and dissolving some of the most insoluble substances; is it not rational to suppose, that the nervous influence of the stomach, may bear the same relation to the exhaled fluids of that organ, in regard to the solution of its contents, that the electric influence does to the pump water, in regard to its action upon the mercury, in the above experiment? Is it not more rational to suppose, that a fluid contained in the stomach, possessing no remarkable chemical properties inherent in its own constitution, may serve as a medium, through which the vital agent, whatever it may be, acts upon, decomposes, and recombines the various alimentary substances; than to suppose that these changes are effected, by the immediate chemical influence of a fluid, which is certainly a perfect anomaly among chemical agents?

The question is not, whether one hypothesis be utterly absurb, and the other palpably demonstrable, but, rather, which has the greatest weight of evidence in its favour; and which best accords with the phenomena manifested by the function of digestion, with the analogy of the other functions, the laws of life and those of inanimate matter.

Let us observe, then, how our hypothesis accords with the experimental and natural phenomena of digestion.

It reconciles at once the before incompatible experiments of Philip and Brodie, for upon our supposition, it is obviously no longer necessary to maintain, that the nervous influence is necessary to secretion, in order to account for the effect of dividing the nerves of the stomach upon the functions of that

organ. It also accounts, satisfactorily, for the *immediate* effect of those experiments which, the reader will recollect, we found altogether inconsistent with the idea, that they merely interrupted the secretion of gastric fluid; and also for the *immediate* influence of emotions of the mind, pain, &c. which may be supposed to counter-excite other parts of the nervous system, and to concentrate its energies, in some intense local action of health or disease.

Our supposition also explains away the anomaly, which the former theory must admit, viz. the existence of unparalelled chemical energy in a fluid, which has nothing remarkable in its sensible properties, or chemical constitution, and which appears to possess none of those principles, which are so remarkable in other (I will not say equal, for there are none, but inferior) chemical agents. But the former hypothesis, presumes not only an unequalled *energy* of action; it necessarily supposes the gastric juice to be a very *general* agent, influencing a greater variety of substances than any other fluid with which we are acquainted. The galvanic principle, however, to which we liken the nervous influence, is capable of conferring a most energetic solvent power upon the most inert fluids, and through their medium of dissevering those substances which are most tenacious of each other, and forcing them into reluctant union with others. The believers in the gastric juice have had so much difficulty in accounting for the general solvent power of this fluid, that some have absurdly presumed the peculiar stimulus of each kind of food to excite the secretion of a peculiar and appropriate kind of gastric juice. Were this true, the stomachs of many persons would, at each meal, be taxed for at least half a score of these distinct solvents.

That the stomach is not irritated by the presence of so powerful a chemical agent, as the gastric juice is supposed to be, has been promptly accounted for, by attributing to it a peculiar sensibility adapted to the nature of this fluid. But how shall we account for its affecting so slightly the organs

of taste, or for its comparative inertness when injected into the bladder, as was done by Dorsey.

"A silver catheter was introduced into the bladder, and to its external extremity was adapted a hog's bladder. About two ounces of gastric liquor from a hog's stomach, were injected into the bladder, through the catheter; the patient declared it gave him no pain but from the catheter having scratched the urethra. A proof that he felt no pain was, that he was unconscious when the fluid entered his bladder. Sometimes, in subsequent experiments, he distinguished it, but most commonly he did not. After remaining about three hours in his bladder he discharged sixteen ounces of fluid, very turbid. The experiment was made at 4 P. M. In the night he had a chill succeeded by a slight fever, but did not attribute it to the injection."

The membrane lining this organ, is delicately sensible to all those chemical agents, which are capable of acting thus rapidly upon alimentary substances, and if the gastric juice is of this character, the vital properties of these organs should no more protect them against its action, than against that of any other active solvent. How shall we account, too, upon the common principles, for the protracted existence of animals in the stomach, in contact with an agent, to the impression of which they are unaccustomed? Leeches have inhabited the stomach for a considerable time with so little inconvenience as to grow to an enormous size. The advocates of the theory of chemical solution have a ready answer, that the powers of life resist its action; but do the powers of life resist the action of analogous chemical fluids? Are the living solids insensible to those agents which almost instantaneously corrode them when dead? Will life protect the skin against the action of nitric or sulphuric acid? or will a leech live and flourish in them, by virtue of his talisman of vitality? So far from it, we know that the weakest of those fluids, which are remarkable for any energy of chemical action, are immediately fatal to all such animals as are not accustomed to their contact.

It appears to me, that our supposition is the only one which can afford an adequate solution of this difficulty. Granting

that the gastric fluid is in itself bland, and not possessed of any remarkable chemical properties, but that it is the conductor of something like the galvanic principle, which being under the control of life, is capable of effecting a kind of animal solution of alimentary substances; and we have no longer any difficulty. Upon this supposition, it is obvious that *life* may repel those agents which are rendered active solely by the powers of *life*.

In the essay, I did not attempt to account completely for the erosions of the stomach which are observed occasionally to take place after death. I endeavoured, however, to show, that they were as consistent with the opinions which I advanced, as with those commonly received. I there noticed the fact, that in those cases, in which erosion of the stomach had been observed, the food contained in the organ was found unaffected. I noticed also the inconsistency of the supposition that it is affected by the gastric juice, with other parts of the theory of solution. If it act upon the stomach after death, it is absolute evidence, that it must have accumulated in considerable quantity; a circumstance which, upon the former theory, as we have already shown, is altogether inconsistent with the sudden interruption of digestion, effected by the division of the nerves, and by other causes which disturb their functions.

I presumed, too, that if a certain degree of heat and motion are the only circumstances which aid solution by the gastric juice, and if after death, when these circumstances no longer exist, it produces such remarkable effects, they ought to be unequivocally demonstrable out of the stomach, and not so obscure, as that the ablest chemists and physiologists, as Reaumur, Montegre and Magendie, deny altogether that they take place when it is removed from the organ. It is evident, then, that there is more lost than gained to the advocates of the solvent theory by the admission of the above facts. If, then, I am myself unable to account for them, they are at least equivocal, and neither to be relied upon by one theory nor the

other. But if there exists the *neuro-electric* influence, of which I have spoken, we are certainly afforded greater latitude for their explanation. As observed in the essay, we know that many of the organic functions are continued after apparent death. On opening the abdomen of an animal recently killed, we find the peristaltic motion still continued, and as vigorous as during life. If then, the stomach loses its organic life by slow degrees, and if different portions of it successively die, as is the case in every part of the system, it is obvious that, wherever the dead portion is in contact with the living, it will be subjected to the impression of the nervous influence, and if life reluctantly abandons the stomach, as in cases of sudden death in the full vigor of its powers, this effect will take place in a very considerable degree, following the retrocession of life along the blood-vessels and nerves. This explanation accords well with the fact, that these erosions usually occur near the centre of the great arch of the stomach, where it has least vascularity, and where its organic powers may be supposed to be the most feeble; and also with the fact that it usually occurs in circumscribed spots, and does not affect the general surface of the stomach, as we should anticipate from the diffusion of such an agent through the organ.

It may be said, indeed, that the above explanation is inconsistent with facts upon which I myself rely in other parts of my argument, since I have asserted that a much less efficient cause than the complete suspension of the animal functions, as merely an emotion of the mind, may interrupt the office of the gastric nerves. In anticipation of this, I would observe, that in the latter case, the effect is rationally to be attributed to a concentration of the nervous energy in the sensorial functions; but when the organic powers continue to be exercised after the cessation of the animal functions, whatever nervous energy remains is concentrated in the last rallying points of organic life.

The uniformity of structure in the different portions of the

mucous membrane, lining the digestive organs, is a circumstance which strongly opposes the idea, that there belongs to that part of it, pertaining to the stomach, a peculiar and remarkable office. It is a principle often employed by Bichat, that similarity of structure indicates similarity of function, and, *vice versa*, that similarity of function indicates sameness of structure. But, surely, if the membrane of the stomach is destined to the secretion of the gastric juice, the most remarkable product of secretion met with in any part of the system, and if the principal office of the intestinal portion be absorption, we have a surprising anomaly in physiology. Ought we not upon this supposition, to detect in the gastric portion of the membrane some peculiar structure, superadded for the performance of this peculiar and remarkable function. The only difference, however, that we can discern between the structure of the membrane of the stomach and that of the intestines is, that the former is of a more delicate tissue, more vascular and nervous, and hence, we should presume *a priori*, qualified to perform the same function with greater energy.

The mucous membranes must be regarded as an exceedingly interesting medium of reciprocal communication between organized and unorganized matter. Through them, animate and inanimate matter are constantly interchanging their elements. For this reason they every where present their free surface to the contact of those substances, which bear an important relation to the organized system; one portion of them, the excretions, having just been rejected by the organs of which they formed a part, and divested of the properties of life; while the other portion, consisting of alimentary substances, is just coming under their control, to constitute a part of the organized system. This is true, not only with regard to that portion of these membranes which lines the alimentary canal, but is also admirably so with regard to that of the lungs. It is now generally admitted that the air inhaled, not only becomes the vehicle which removes recrementitious matters from the blood, but that it also imparts

a necessary principle to it, through the medium of the pulmonary membrane.

It has been suggested by a friend, as a circumstance operating against that part of my system, which relates to the absorption of aliment, that, since it is ascertained that nature has provided one route for the passage of pabulum into the mass of the blood, and since she accomplishes her ends by the simplest means, it would be a matter of supererogation to furnish another. Were it satisfactorily ascertained, that the lacteals *do* convey *all the constituent principles* of the blood, and that the route of the thoracic duct is sufficient, under all circumstances, for the performance of the office attributed to it, the objection would present considerable difficulty. But it appears by no means certain, that the different constituent principles of the blood, *can* be elaborated by one chemical process, or further assimilated by one set of vessels. But, as analogy furnishes the above objections, we will resort to it for a reply. The two great classes of organic phenomena are, first, those which are presented in the process of assimilation, or the enduing of aliment with the vital properties of the blood, and second, those which occur in the secerning processes, or the regression of matter from its vital to its physical condition. The functions which constitute the latter class, and which are the least important, we know to be accomplished by a great variety of organs, eliminating different principles from the blood, as the kidnies, the skin, the lungs, &c. &c. Is it not rational, then, to suppose that the constituent principles of the blood are also furnished through different *routes*, and that they receive their specific characters from the peculiar action of the vessels through which they pass?

I would particularly call the attention of my readers to a very beautiful correspondence, which my hypothesis suggests between the extreme arteries and veins, and which certainly reciprocates much in favour of its truth.

All the exhalations and secretions we know to be effected

by the extreme arteries, or by vessels continued from arteries, after they have become of imperceptible magnitude. By them the materials of the system are recommitted to the control of physical laws. By the corresponding extreme veins, on the other hand, after being prepared in the stomach, they are taken up and go through precisely the reverse process, viz. assimilation and union with the vital mass. The egress of matter is through the extreme arteries, its ingress through the extreme veins. That the secerned fluids may not, in the descending gradation, bear away with them any of the still necessary principles, they are many of them passed through glandular structures; and that the aliment, in the ascending gradation, may not bear into the circulation any thing too little assimilated, it is made to pass through the liver, which in magnitude is equal to the aggregate of all the other glands in the system.

The analogy may be carried still further without violence. As there are some of the secerned fluids which pass out of the system through no other medium than the exhalant vessels, so there are nutrient fluids, which immediately enter the circulation through the lacteals.

It may still be objected to all which I have advanced on this subject, that the solvent powers of the gastric juice have been by many experimentors demonstrated out of the stomach, and that something like artificial digestion has been often accomplished. I am by no means desirous of concealing the magnitude of this objection; at the same time, I demand equal candor on the part of my readers, in relation to the experiments alluded to. In the essay, I mentioned the circumstances which would appear to render their results equivocal. As we are unable, either to define the precise change which the food undergoes in the stomach, or the properties of chyme, which vary with the varying diet, it is obvious that we have no standard to which these results are to be referred. It is easy to conceive that comminution and maceration of aliments in the fluids of the stomach, at the natural

temperature of the body, may effect such a change in their sensible properties, as that they shall resemble some varieties of chyme. It is possible, too, that the adventitious acids, which are very frequently present in the gastric fluids, may, in some instances, have aided the effect, and particularly in the decomposition of bones, for which but a feeble counter-affinity is required.

It would not be at all surprising, therefore, if with these opportunities for self-deception, something of this kind had been effected out of the stomach; particularly if the experiments were undertaken by one already fully persuaded of the truth of what he was only endeavouring to confirm. We know, from a thousand examples, that observations of this kind are exceedingly apt to be fallacious, when the experimentor thus anticipates the result.

But if such an effect from these experiments, even supposing that the gastric juice have no remarkable solvent properties, be not a matter of much surprise, their failure, *granting* the extraordinary chemical powers of fluid, would be one of very great astonishment, and particularly, if undertaken by those who had full confidence in a favorable result.

That these experiments have often failed, under such circumstances, in the hands of the ablest chemists, and without the omission of any circumstance calculated to facilitate them, is well known.

I have sought, in vain, for the original memorial of Montegre on this subject. I must therefore content myself with quoting Magendie's allusion to them, and to those of Reaumur.

"To establish, incontrovertibly, this point, it has been attempted to produce what has been called, since the time of Reaumur and Spallanzani, *artificial digestion*. For this purpose, after having masticated the food, it has been mixed with the gastric juice, and afterwards exposed in a tube, or other vessel, to the same temperature as that of the stomach. Spallanzani has asserted that they succeeded, and that aliments were reduced to chyme. But since the more recent researches

of M. Montègre, it appears to be shown that this is not the case, but, on the contrary, that the substances employed, did not undergo any alteration, at all analogous to that of chymification, which agrees with the experiments of Reaumur."

If, then, the results of these experiments be abandoned as equivocal by some of the ablest physiologists, and who, nevertheless, labour to prove the chemical solution of aliment in the stomach, it can not be regarded as presumption in me, if, after having adduced other circumstances to weaken their evidence, I also reject them.

The immediate coagulation of milk, by the secretions of the stomach, and by the mucous membrane of this organ, even after being kept for a great length of time, has been regarded as a strong circumstance in favour of the solvent powers of the gastric fluid; but is effectually answered by the fact, stated by Bichat,* *that all the mucous surfaces possess this property.*

A circumstance unnoticed in the essay, as favouring the common opinion on this subject, is the supposed discovery of chyle in the intestines. I do not deny that some physiologists† have detected a whitish fluid in the stomach and intestines, but they have by no means given sufficient reasons for identifying it with the fluid which is detected in the thoracic duct.

It will be found upon examination, that nearly all the characteristic propreties of chyle are predicated, exclusively, of that fluid which is found in the lacteal vessels, and that there are no facts, or experiments, which warrant the application of that name to the fluids of the stomach or intestines. This has arisen from not regarding sufficiently the assimilating office of the lacteals themselves. We have ample reason to believe that no fluids pass through capillary vessels without change.

The conclusions, then, which I would draw, from the ar-

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* General Anatomy, v. 3. p. 82. † 2. Hunter, &c.

guments advanced in the essay, and in the present supplement, are:

First, *That there is no fluid secreted by the stomach, possessing the remarkable chemical properties, attributed to the gastric juice, and consequently that chemical solution does not take place in that organ.*

Second, *That there is a neuro-electric, or an electro-animal principle, conveyed by the nerves of the stomach, and made to act upon its contents through the medium of its saline secretions, which possess sufficient animal properties to facilitate its transmission, and to aid the effect.*

Third, *That the aliment in the stomach, thus undergoes what may be termed an animal decomposition, and after being reduced to its elements, is recombined by the principle which controls the composition of animal matter, though not probably endued with any properties of life, till it enters the circulation.*

Fourth, *That a very considerable portion of the aliment is absorbed by the capillary veins of the stomach and intestines, and consequently conveyed through the vena portæ, and the capillary system of the liver, in which route it undergoes still more important changes, and becomes endued with some of the vital properties of the blood.*

Fifth, *That another portion is taken up by the lacteal absorbents, by which it is converted into chyle.*

It may, perhaps, by some, be thought presumptuous in me, thus to attempt the refutation of opinions substantiated by numerous experiments and extended personal observation. If any apology be necessary, for the freedom which I have used in this discussion, I would observe, that whenever a fact is brought forward, for whatever purpose it may have been employed by the discoverer, it at once becomes the property of the literary community, and may be used for any logical purposes. It is generally the case, that experimentors, intent upon some preconceived hypothesis, take but a partial view of the relations which their results bear to the rest of the science. Although they contribute to the completion of the

structure, by bringing together the materials which nature has dispersed through her works, the scientific arrangement of them is usually reserved for other hands.

If I may compare small things with great, I would vindicate the course which I have pursued, by observing that nearly all the facts, relating to the circulation of the blood, were demonstrated to Harvey by his predecessors, and that his great merit consisted in drawing from them the correct inferences. It appears to me that a just arrangement of the established facts, in relation to digestion, is at present a greater desideratum than the multiplication of equivocal experiments. The materials are sufficient. The *present* arrangement is certainly incongruous. That a more symmetrical disposition of them has been my *object*, I trust there is no arrogance in avowing; of the success of the *attempt* the public will judge.

ART. II.—*Classification of Anatomy and Physiology.* By N. R. SMITH, M. D.

GENERAL ANATOMY.

ANATOMY.	PHYSIOLOGY.
ELEMENTARY TEXTURES.	ELEMENTARY PROPERTIES.
Chemically Constituted, and Organized. — Cellular Texture, Osseous, Cartilaginous, Fibrous, Muscular, Nervous, Serous, Mucous, Epidermoid	Tenacity, Hardness, Elasticity, Flexibility, Smoothness, Extensibility and Contract. of Tex., Sensibility and Contract. of Life — *Physical and Vital.*
ELEMENTARY *General Organs.*	ELEMENTARY *General Functions.*
Resulting from union of Texture. — Blood-vessels, Exhalants, Nutrients, Absorbents, Nerves.	Circulation, Exhalation, Nutrition, Absorption, Sensation. — *Resulting from union of properties.*

COMPOUND *Independent Organs.*		COMPOUND *Independent Functions.*	
Resulting from union of textures and elementary organs.	Brain, Eye, Ear, Palate, Schneiderian Membrane, Skin.	Moral & Intellect. Phenom. ——— ? Vision, Hearing, Tasting, Smelling, Protection, &c.	*Resulting from union of elementary functions and properties.*

APPARATUS *Of Associated Organs.*		ASSOCIATIONS *Of Functions.*	
Resulting from associations of distinct organs and textures.	Digestive Apparat. ——— Respiratory ——— Secernent ——— Locomotive ——— Sexual. ———	Digestion, Respiration, Secretion, Locomotion, Generation.	*Resulting from union of functions and properties.*

NOTHING contributes so much to facilitate the acquisition of science, or to render the pursuit of it an intellectual enjoyment, as natural and lucid arrangement. The detail of insolated facts is always tedious and repulsive. It is in their relation to each other, as parts of a system, that they are important and interesting. The teacher who would excite interest in his pupils, must imitate the artist, who with a few strokes of the pencil, pourtrays the outline and general expression of the subject, so that in the filling up, each touch shall produce its effect in relation to the whole.

Classification must ever vary till the science, in which it is employed, becomes fixed upon demonstrable principles. It should always be predicated on our present knowledge. If an ingenious arrangement continue to be employed when, by the accumulation of facts, the materials of the science have become changed, it will retard our advancement. If it be formed in *anticipation* of the progress of our knowledge, it will almost always conduct our inquiries erroneously.

No man has contributed more, in physiology, to the accumulation of facts, or to the scientific arrangement of them, than Bichat. His system, however, with unequalled merits, possesses capital faults. I believe that neither have been

justly appreciated. His experimental analysis of the organs into elementary textures, and of the functions into elementary vital properties, lays the true foundation for the prosecution of the science on inductive principles. Even in this, however, there are certain inconsistencies which have diminished the influence which the method employed would otherwise have exercised. It will be recollected that, with the cellular, serous, mucous, fibrous and other textures, which are demonstrably simple, he associates the vascular system of red blood, of black blood, the nutrient, exhalant, absorbent and glandular systems. Any one, at all inquisitive, must, I think, be struck with the incongruity of such an association. Both classes of blood-vessels are obviously compounded, each consisting of three coats as distinct as those composing the stomach or intestines. They retain this compound structure till they become too minute for observation. We have strong analogy, then, for regarding, not only the most minute of the blood-vessels, but the exhalants and the nutrients which are continued from them, and indeed all the circulatory vessels, as compound. Bichat appears to have been led into this error, by the resemblance which they bear to many of the textures, in being generally diffused, not distinguishing between general *organs* and general *textures;* and also by the presumption that these general organs, the exhalants, nutrients, &c. are elementary with respect to the simple textures themselves. This, however, is refining beyond the reach of our senses. Those are to be regarded as distinct and simple textures which, so far as we can discern, are homogeneous in their structure. The vital and physical characters, *demonstrable* in them, do not depend upon the presence of the minute organs, of which we may suppose them composed, although their *formation* may, but are conferred upon the *texture.* But it is not certain even that vessels of *any* description enter the simple tissues. Their presence in them is presumed to account for their formation. May they not, however, be organized from the blood, by the neuro-galvanic in-

fluence, which is found to have so much control over the vital functions. If the latter has the least plausibility as a *presumption*, the former is nothing more. That there is some limit of this kind to vascular organization is very certain, for if, for instance, we suppose the cellular tissue to be vascular, we must suppose its elementary *vessels* to be also *vascular*, and so on to infinity.

His most important error, however, and which well illustrates the evil resulting from hypothetical arrangement, is his division of the functions of the individual into animal and organic. There certainly can be no impropriety, when tracing the gradations of life, in designating those functions as *organic*, which constitute a being, as for instance a plant, that has no discriminating perception of surrounding objects; or in denominating those *animal functions*, which, being superadded, establish this last interesting relation. But when, from regarding these classes of functions as distinct in two classes of beings, we attempt accurately to distinguish them in an *individual*, we are involved in difficulty, for the latter are so engrafted upon the former, and the two hold such intimate intercourse through important common organs, that we cannot discover any natural demarcation, nor determine what degree, or kind of influence, one exerts over the other. This feature of Bichat's classification was predicated on an anatomical and physiological distinction, between the sympathetic and cerebral systems, which has since been shown to be hypothetical. We have already observed that classification should, unless professedly artificial, be founded only on established principles, for we employ it merely for the purpose of embodying our facts, and by no means to conduct our investigations, since such an order would be altogether inconsistent with *inductive* inquiry.

Neither is there a proper symmetry between the two primitive classes of this author. I mean, 1st, the functions relating to the individual, and 2d, those which are necessary to the species. The whole of the latter class is not of greater mag-

nitude and interest than some of the subdivisions of the former. It is furthermore objectionable as being unnecessary. No perplexity need arise from considering the function of generation as belonging to the individual.

Another objection to the above classification is its being so minutely and speculatively ramified, that, instead of presenting to the student at one view, a clear outline of the *subject*, it is itself a source of perplexity.

It will be seen that, in the foregoing table, I have endeavoured to embrace the excellencies of Bichat's classification, whilst I reject so many of its principles, deemed erroneous, as to give it almost entirely a new aspect. It has been my object to carry through the whole science the anatomical and physiological climax of composition, which is suggested by his elementary textures and elementary properties.

With regard to the distinction of elementary textures, I would observe, that Bichat's system has been criticised by many who have not appeared to understand the principle upon which it was founded. It was not his object to resolve every part of body into the ultimate constituent principles, to which they may perhaps be reduced by maceration and other mechanical means; but to designate those as elementary, in relation to the organs, which are, in their *natural state*, characterized by peculiar physical and vital properties, and which are uniform in their appearances and offices in every part of the system. Thus, the serous membranes may be resolved into cellular tissue, but they are strongly characterized by peculiar properties, which are conferred upon this particular condition of that tissue, and are to be regarded as distinct. The same may be said of the bones. They have erred, therefore, who have endeavoured to reduce the simple textures of Bichat to the number of three or four. There are some, however, which may with propriety be rejected as mere *varieties* of other textures, as for instance the medullary, the pilous, &c. Certain compound textures as the fibro-cartilaginous, in which the properties of the constituents are

not changed but merely modified, need not be treated of distinctly.

It will be seen, that, in my arrangement, the blood-vessels, absorbents, nerves, &c. with their functions, constitute a class by themselves. The name which is conferred upon them expresses the reason for this disposition. They are compound, and they are general, all of them entering into the composition of most organs, and some of them supposed to be essential to all. The functions which they perform are general, and for the most part, common to all the compound organs. Although I would in the first class, treat of the nervous *texture*, yet the *nerves* are to be regarded as elementary organs, bearing a relation to the system, corresponding to that of the blood-vessels, &c. They are also compound and divisible into nervous and cellular textures.

The next class consists of compound independent organs, and their corresponding functions. It cannot be supposed that I would mean absolutely independent, but merely that each one of these organs completes its function singly, without the aid of subsidiary organs. Of course they are connected with the system, through the medium of the elementary general organs, of which, and of simple textures, they are compounded. The phrase which I use to designate this class, will be better understood when regarded in contradistinction to that by which I denominate the fourth and last class. In this it is obvious that several distinct organs contribute their several functions to one common function. I therefore denominate the association of these organs an apparatus, and the result of their united offices an association of functions.

It appears to me that the facility and the interest with which anatomy and physiology might be studied, are much diminished by the unnatural separation of these two parts of the science, which at present prevails. The structure of an organ is only interesting in relation to its function, and its function is only intelligible by reference to its structure. The plan which I have pursued, it will be seen, recognises this principle.

ART. III.—*Observations on the use of the Artemisia Vulgaris, in the treatment of Epilepsy.*

DR. BURDACH,* a few years ago, directed the attention of the profession to the *rad. artemisiæ vulgaris*, as an exceedingly effectual remedy in epilepsy. Since his first publication on this subject he has had considerable experience with this article in the treatment of this affection, and has found that, although not so universally applicable as he at first believed, it is a remedy of great and prompt efficacy in some varieties of this distressing malady. In those cases of epilepsy which occur in young male persons between the ages of seventeen and twenty, the result of too rapid process of corporeal evolution, he has found this remedy not only useless, but in most instances manifestly injurious. Some cases, however, even of this character, he succeeded in removing; and he observes that one or at most two doses of the medicine should be tried in cases of this kind; for it is a remarkable circumstance, he says, that in almost all cases of epilepsy in which the *artemisia* has been found successful, an evident amendment of the disease occurred from the first dose. If in any case of epilepsy there be not a manifest improvement effected by the first, or at furthest, the second dose of the medicine, no benefit can in general be expected from continuing its use. Dr. Burdach states, that so far as his observations extend, the same objections do not exist to the employment of this remedy in cases of epilepsy occurring in young *females* about the age of puberty, as in males. In general he found this medicine more frequently successful with females than males, the instances cured of the former being to those of the latter sex, as three is to two. He has not as yet been able to deduce from experience any definite indications for the employment of the artemisia.

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* Hufeland's Journal of Practical Medicine, December, 1824.

He has found it occasionally promptly successful in very obstinate cases, while in other instances apparently perfectly similar, not the least advantage was obtained from it. In general, however, the more recent the first attack of the disease has been, the more certainly will the remedy act beneficially. Dr. Wagner, of *Schlieben*, also, has published observations which go to confirm the favourable account given by Dr. Burdach, of the effects of this remedy in epilepsy. He relates the following case:

Francis F. aged thirteen years, about three years ago received a blow on one of his temples with the open hand. He was soon afterwards seized with a paroxysm of epilepsy, which at first returned at rather remote intervals, but became more and more frequent until the paroxysm at last recurred from six to eighteen times daily. The patient became gloomy and stupid. A great variety of means were employed to free him from his terrific complaint, but without the least advantage. Finally, Dr. Wagner, seeing Dr. Burdach's statement of the efficacy of the root of the artemisia vulgaris in this complaint, determined to give it a trial in this instance. He accordingly administered a dose of this medicine late in the evening; and the patient had only three paroxysms during that night, after the last of which, he fell into a sound sleep, which continued until late in the following morning. On visiting the patient next day, he found him in the most profuse perspiration: and so excessively fœtid was the sweat, that the air of the room was almost insupportable. During this day he had no epileptic fit. In the evening the *artemisia* was again given, and the patient suffered but one paroxysm during the ensuing night. The perspiration was again copious and fœtid, though in a less degree than during the preceding night. No paroxysm on the succeeding day. A third dose was administered on the evening of this day; and the patient remained entirely free from his disease during the night. The sweat was again copious, but unattended with any disagreeable smell. The remedy was now

discontinued, and the patient has ever since remained perfectly free from epileptic symptoms.

The *artemisia vulgaris*, is by no means a new remedy in epilepsy. Dr. Stoll has collected a number of passages from various writers, in which this article is mentioned as a remedy in this disease. This writer says, that he has known the root of this plant used, more than twenty years ago, as a domestic remedy against epilepsy; though he did not then pay any attention to it.

Ehmuller says, in his Oper. Med. Edit. 1696, p. i. fol. 519; "Notum est quod circa festum sancti Johannis Baptistæ sub radice hujus (artemisiæ rubræ) *carbones* reperiuntur, multæ laudis in *epilepsia*." Hi carbones, says Simon Pauli, non sunt fabula uti Hoffmannus voluit sed nihil aliud quam radices artemisiæ annosæ demortuæ et ita exsiccatæ atque nigricantes, alcali ad huc refertæ, quæ in epilepsia re vera juvant. Semper quidem anile figmentum putavi: novi tamen non solum mulierem militarem hujus loci, quæ hosce carbones, propriies infantibus epilepticis cum fructa propinavit; sed et *Joel*, in Praxi, c. de epilepsia commendavit, vir alias minus superstitiosus.

Zwinger, an author who was much esteemed in his day, speaking of this plant, says: *mire in epilepsia valet.*

Dr. Burdach says, that care should be taken in pulverizing this root, to separate the internal ligneous parts from the external or cortical, which latter is the only medicinal part of the plant. The dose is from thirty to forty grains for an adult, once a day. The artemisia vulgaris is indigenous to our own country, and is known under the familiar name of *mugwort.*

ART. IV.—*Observations on Fractures of the Femur, with an account of a new Splint*, by NATHAN SMITH, M. D. C. S. M. S. Lond. Prof. of Surgery, &c. in Yale College.

IN the treatment of fractures, the first object is to place the extremities of the fractured bone in accurate apposition. In general, this is accomplished without difficulty. It sometimes, however, happens that the muscles are so contused, or otherwise irritated, as to become morbidly rigid, and to resist a considerable degree of force although the limb be placed in the most favourable position for the reduction. Under these circumstances, it is with some difficulty that the fractured surfaces are brought in contact with each other. If the position of the limb be injudicious in relation to the action of the muscles, or if the force be suddenly and unequally applied, the difficulty is often insuperable. When, however, the contraction has been overcome by the necessary degree of extension, if the fracture is at all oblique, the muscles will repeat the displacement, as soon as the extending force is discontinued; consequently there is indicated the employment of a permanently extending force, a remedy which, from the difficulty that attends the employment of it, and from the want of tact in adjusting it, is exceedingly equivocal in its results, often defeating its own object, with regard to the limb, and occasioning a great deal of suffering to the patient.

The principal difficulty, then, in the treatment of fractures, is not in the manual operation of reducing the bones to their places, but in keeping them accurately there till union can be effected. This difficulty, however, does not altogether consist in the liability of the limb to be shortened by the contraction of the muscles, but also in the tendency which there is to the other kinds of displacement. The limb, below the fracture, may assume such a position, that the axis of the inferior fragment may not coincide with that of the superior, but may make an angle with it; or the limb may rotate, so that the fractured surfaces shall not correspond. This often occurs in fractures

of the thigh, from not properly supporting the foot, which, acting transversely upon the axis of the limb, operates like a lever to rotate it. Or, finally, there may be a displacement of the fractured extremities laterally, occasioned by the unequal action of the muscles, or by the limb not being equally supported.

The liability to these kinds of displacement and consequent deformity will depend, in a great measure, upon the length and weight of the limb below the fracture. It is obvious that the greater the length, the more power will the weight of the extremity have to bend the limb, and the less apt will the portion below the fracture be, to accompany the part above in those motions which it is impossible to avoid. The nature of the difficulty, in these cases, should indicate the means which are best calculated to remedy it, and hence it is obvious that the most important indication is to employ such an apparatus as shall command the whole limb, so that the part below the fracture shall preserve its proper range with that above, and in the different motions which may be necessary, that the whole shall move as one, the fragments maintaining their relative position in all respects.

Another important circumstance to be attended to is the attitude of the fractured limb, which should be such that, as much as possible, the antagonizing efforts of the flexor and extensor muscles may be made to balance each other. From the neglect of this circumstance, almost every kind of evil to the limb is liable to occur; the muscles will exert an unequal force laterally, tending to lateral displacement, the contractile force to be overcome must necessarily be greater, the application of the extending force can not be made in the direction of the axis of the broken bone, and in addition to all these, the ease and comfort of the patient, so necessary to the healthy process of union, are greatly impaired.

Another object to be attained, is so to contrive the apparatus that the patient may be moved from place to place, or taken from one bed and laid upon another, without injuring

the limb, or retarding the cure; for it is no small penalty to be confined on the back for forty or fifty days.

The above are the principal indications to be kept in view. But while we attend to them, there are certain injurious circumstances to be avoided, or obviated, which might frustrate our intentions, or give the patient unnecessary pain and inconvenience. The most important of these is injurious pressure. This is often produced in two ways; and first, by the weight of the limb resting upon a small part of its under surface. This cannot be continued for any length of time, even although it rest upon a cushioned support, without producing injurious effects. The softness of the support is too often a circumstance which deceives the surgeon. A little reflection, however, must convince every one that, if the weight of the limb rest upon an inch square of surface, the effect will be the same whether it rest upon eider-down or adamant, provided the surface of the latter be accurately adapted to that of the limb. To obviate this difficulty and source of injury, the support upon which the limb rests, whatever it may be, should be so adapted to the whole under surface of the limb, as to divide the pressure as equally as possible throughout every part of it. If this be done, it will make no difference whether the support be hard or soft, the benefit of soft substances as an easy support, consisting entirely in their receiving the weight upon a greater surface, and thus dividing the pressure more equally.

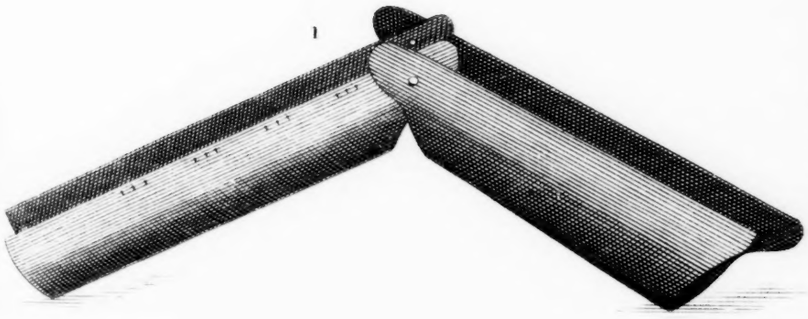
The other kind of injurious pressure, which is often, I may even say generally produced upon fractured limbs, is occasioned by the application of splints and bandages immediately to the neighbourhood of the fracture, with a view to keeping the extremities in place by means of lateral pressure. This occasions injury by the partial contact of the narrow or flat splints bound tightly to the limb, and which, notwithstanding the compresses which are interposed, gall and chafe it in particular places. The circular bandage, by making pressure entirely around the limb, intercepts the returning blood in the

veins, and causes the limb to swell below the bandage; or if the limb be equally bandaged throughout, impedes the healing process to which a free circulation is necessary, or irritates the soft parts by pressing them upon the fractured extremities, and not unfrequently, by the inflammation and ulceration which is produced, converts simple fractures into compound.

This kind of pressure is employed from a mistaken notion, which prevails too generally, that such bandaging and partial bracing of the limb contribute much to keep the bone in place. If surgeons, who are in the practice of applying bandages tightly around fractured limbs, would take the trouble to investigate the subject, I think they would perceive that such practice can do nothing but mischief. They can not be applied sufficiently tight to prevent the shortening of the muscles without interrupting the circulation, and it is doubtful whether *any* degree of tightness would aid in the least, to effect this object; nor can they contribute at all to prevent displacement of the extremities, if the limb below the fracture is moved from its proper position, or if the limb above the fracture is, by the motions of the body, moved out of its relative and natural position. If, in a case of compound fracture, in which the ends of the bones are in sight, or in which they can be touched by the finger, the surgeon will take hold of the limb below the fracture, while he keeps his finger on the fractured ends of the bone; he will find that, by moving the limb into its proper relative situation with the limb above the fracture, the bones will readily come into apposition; but if he attempts to bring the ends of the bones into apposition by pressing them down with his fingers, he will find it utterly impossible to do it, with any force, unless he move the limb below the fracture with the other hand. The weight of the limb is acting against him at the end of a lever which gives it an infinite advantage. For this reason no pressure which the limb can bear without destruction, will prevent the ends of the bones from being displaced, if

the limb is moved out of its proper position. This mistaken idea of the utility of bandages in maintaining the natural form of the limb, and the necessity of them to attach the splints which are commonly used, has led to an unremitted employment of them, which could not fail to be exceedingly injurious, even were they capable for a time of effecting the objects for which they are intended. It is too generally presumed that, when a fractured limb has been once dressed, or set, as it is vulgarly expressed, it must remain perfectly fixed till the bones have united; and as it receives its support from the splints which are commonly employed chiefly through the medium of the bandages, there is generally a great unwillingness to relax the support by loosening them; nor indeed can it be done, as the apparatus is usually applied, without occasioning more or less displacement. There is often, however, a more insidious and much more fatal mischief resulting from this apprehension of relaxing the supports of the limb. The unreasonable fear of unbinding it thus enveloped as it is in the dressings, for the purpose of noticing its condition, is a timidity which has proved the destruction of many limbs and some lives, and almost always occasions excruciating torment to the patient. It is rare that bandages encircling the limb are not, either at first applied too tightly, or become so, soon after their application, by the swelling of the limb. To the surgeon a part of the dressings may appear sufficiently loose, while by the unequal swelling of the limb, other parts may occasion and conceal a great deal of mischief.

It is unnecessary that I should speak of the great variety of methods which have been employed to maintain the reduction of fractures of the thigh, in order to point out in them the deficiencies which I have spoken of above. Observation and reflection will, as I think, convince every one that the difficulties which I have enumerated are completely obviated by none of them, and that they are for the most part deficient in the general principles which govern their application. I would particularly, however, call the attention of my readers to that which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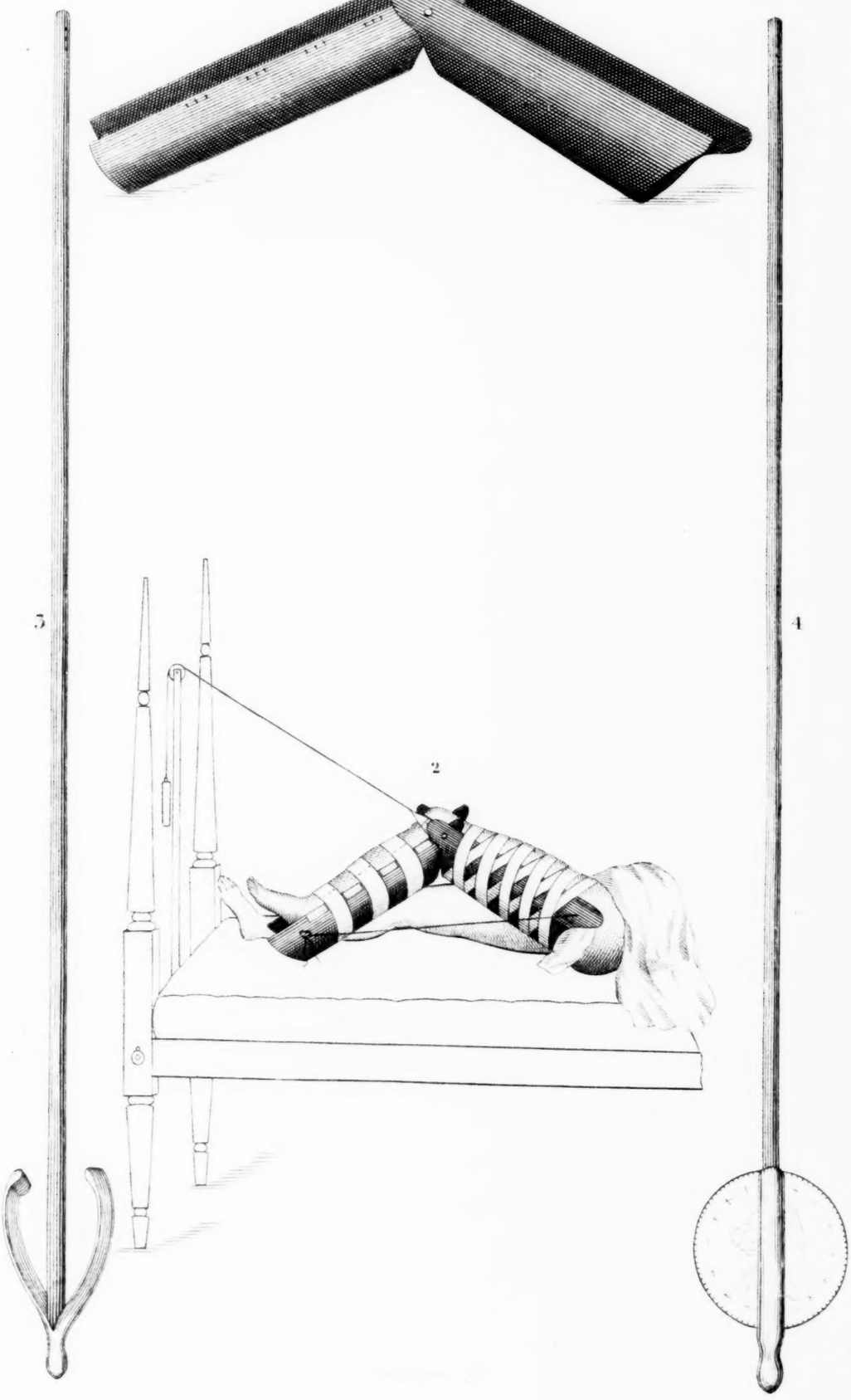
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is now used almost exclusively by scientific surgeons, and which, with its modifications, appears to be regarded, though acknowledged very often to fail, as the *ne plus ultra* of inventions for this particular purpose. I mean the method of Desault. This is so familiarly known that I will not attempt to describe it minutely. The principal object, which this apparatus is intended to effect, is permanent extension. One long splint is essential to it. This, in the original apparatus of Desault, was a flat piece of wood applied by bandages to the outside of the limb, with compresses intervening, extending above the hip and below the foot. Oblique bands were cast between the thighs and over the extremity of the splint, which thus effected the counter extension, while extension was made by passing bands from the ancle and foot to the lower extremity. Short splints were also bandaged to the thigh, and the whole was closely enveloped in dressings. The patient was of course confined to his back, and the limb was made to rest upon cushions throughout its whole length. The above apparatus has been ingeniously modified by Drs. Physick and Hartshorne. The former gentleman extended the superior extremity of the long splint to the axilla, in the form of a crutch, with a view to relieving the perineum from the galling pressure of the counter-extending band; the latter, by employing two long splints, divided the resistance more equally around the base of the limb.

The first objection, which occurs to every variety of this apparatus, is the attitude of the limb, by which an unequal degree of tension is produced in the flexors and extensors. It is obvious that, when the thigh is extended upon the pelvis, and the leg upon the thigh, all the extensors have their utmost degree of relaxation, while the flexors have a corresponding degree of tension. It is said, indeed, that, although this posture is at first painful to the patient as being unusual, yet, when the extension has been continued for a time, the contraction of the muscles is overcome and he ceases to complain. This, however, is only an evidence of what mechanical force

can effect, and that the muscles, after the extension has been continued for some time, become paralysed, and their sensibility obtunded. It does not prove that the two classes of muscles, which are thus unequally stretched, exert an equal degree of force obliquely upon the bone; for although their vital contractility may be suspended, we know that the contractility of texture increases with the increased degree of extension, so that although the sensations of the patient do not indicate it, yet it is absolutely certain that an effort is constantly making by the muscles to displace laterally the bones to which they are attached. It is obvious, also, that a greater degree of force will be necessary to give the limb its natural length, than if the muscles are in harmonious relation with each other.

A little reflection must also convince us that, under these circumstances, it is impossible to make the extension precisely in the direction of the axis of the thigh bone, for the force which is applied to the limb below the fracture, is communicated to the part which is above, wholly through the medium of the muscles, and this will chiefly be done by those which are the most tense. These will be drawn into the line of direction, in which the force acts, while the bone, not being equally supported on the opposite side, will be crowded from it. The more nearly the muscles antagonise each other, the more nearly will the extension be made in the direction of the axis of the bone, and *vice versa.*

Another objection to this apparatus is, that the support which it receives from beneath, although it rest upon cushions, is, for reasons mentioned above, necessarily confined to a small part of the surface, and must occasion pressure more or less injurious. Another great inconvenience to the limb and to the patient arises from the support not constituting a part of the apparatus attached to the limb, and consequently not moving with it, in the different unavoidable motions.

The remarks, which were made upon the pressure of flat, straight splints, and circular bandages, are applicable to this method.

The apparatus which I have used for several years past was designed to answer the general indications of which I have spoken, and was the result of long experience of the difficulties which attend the treatment of fractures generally, and particularly those of the thigh. It consists of two thin broad pieces of wood* so warped as that the concavity of one shall correspond to the convexity of the under surface of the thigh, and the other to that of the leg. The lower extremity of the thigh piece and the upper extremity of that of the leg, are jointed together. This is done by paring out the margin of each of them, in the middle, so as to make them deeply concave. The projecting corners of the extremities, which are thus produced, are applied to each other, so that those of the thigh piece embrace and overlap those of the leg piece, and each pair being fastened together by a pin, performing the office of a pivot, a perfect hinge is produced, which admits of no other motion but flexion and extension. The superior margin of the thigh piece is then pared away, so as to adapt it to the shape of the pelvis against which its circumference rests. Where it presses upon the pubis and the tuber of the ischium, as it may be made to do, it should be bordered with soft leather, and stuffed. The leg piece is to be made longer and larger than the leg, and as its concavity can not be exactly adapted to the convexity of the calf of the leg, this part of the limb is to be slung in the splint, by means of strips of cloth, or leather, which pass across it and hang loosely into its concavity, being attached to one side of the splint by tacks, and on the other by hooks or buckles, which will admit of their being tightened or loosened, as may be necessary, without disturbing the limb. The circumference of the thigh piece is to be a little less at the inferior than at the superior extremity, to adapt it to the tapering shape of the limb. A strap, passing from the upper

* Bass is that which I have employed, as being more flexible, and less liable to split than almost any other.

extremity of the thigh piece, to the lower extremity of that of the leg, will enable the surgeon to fix it at any angle that he pleases.

In applying it, there may be laid along under the whole splint bands of firm cloth, long enough to embrace the splint and the limb. A broad linen cloth may be laid in the thigh piece. The limb is then to be carefully laid in the splint, the size of the one having been adapted to that of the other by measuring the sound limb; the linen cloth may be folded over the limb, and the whole splint then secured to it by overlapping and pinning the bands along its whole length from the hip to the ancle. As the pieces of the splint are flexible, they will be made by the bands to embrace the limb firmly enough, although they may not have been precisely adapted in size. In most instances, in which the limb has been thus dressed, almost every source of irritation being avoided, and the attitude natural and easy to the muscles, I have not found it necessary to use permanent extension. I am confident that the necessity for its use is often occasioned by the apparatus itself which is employed to effect it. Where, however, the fracture is very oblique, and the muscles are disposed to contract and shorten the limb, I have employed a mode of extension, which can be graduated to any degree of force, and which may always be made in the direction of the axis of the thigh bone. It is accomplished by lacing a soft band of leather round the leg, just below the knee, and to this attaching a cord, which is carried in the direction of the bone over a pully in a stand nailed to the foot of the bed, and which may be lowered or raised at pleasure. To the end of the cord is attached a weight, equal to the necessity of the case. The weight of the body makes the counter-extension, which may be increased, if necessary, by raising a little the foot of the bed.

The reader will readily perceive that, by this apparatus, all the indications which I have spoken of above are intended to be answered. The limb may be placed at any angle,

which the muscles may require, without at all disturbing the fracture. It is completely protected from hurtful pressure, as it rests upon the whole surface of its semi-circumference, and as it is no where girt by bandages, being protected from their unequal pressure by the splint, suffering them to touch it only on its upper surface. Along the angles of the splint and bandage, there is no pressure at all, so that the blood returns with perfect freedom. The weight of the leg being perfectly commanded by the lower piece, and the limb easily fixed in any position, its control over the fractured extremities is completely obviated. The splint being light, and the whole of it attached to the limb, and the support being the splint itself, there is no difficulty in moving the whole limb as one, or in transferring the patient from one bed to another. The bandages may be at any time relaxed without the least danger of disturbing the fracture, they being only necessary to secure the limb when it or the body moves. It is to be particularly noticed, as one of the excellencies of this method, that the weight of the limb itself, and the reaction of the hollow splint in which it is lodged, constitute all the force, which, under ordinary circumstances, is necessary to maintain the reduction. It is particularly adapted to compound fractures, which may be examined and dressed without in the least disturbing the limb, and even although the wound be on the under surface, by cutting away a portion of the splint opposite to it. The few words which are necessary to describe this splint, are a sufficient evidence of its simplicity, almost any person can construct it in a very short time. The objections of complication and expense, therefore, which prevent the general use of some others can not be made to this. I do not, however, rely solely upon the theoretical principles which indicate its use. Its present form is the result of twenty years extensive experience in the employment of some modification of it, and I never have seen sufficient reason to induce me to abandon it for any other.

The reader will have no difficulty in forming an idea of the splint and its appendages, by attending to the plate.

We are confident, that our readers will be highly gratified with the above account of professor Smith's apparatus for fractured thigh. We regard it as the most valuable paper, on the subject of fractures, which we have for a long time seen. The principles which govern its application are philosophical, ingenious and practical, evidently the result of nice observation and professional tact. We do not hesitate to express our confidence, that it will eventually become generally used. We only regret that an account of it has not been earlier given to the public. Dr. Smith will, for our next number, communicate an article on fractures of the leg.

This distinguished and original practitioner, from an almost unequalled experience in the practice of surgery, has accumulated a fund of original observations, which have not yet been communicated to the public but through his lectures. We are happy to announce that, hereafter, probably every number of our journal will be enriched with something from his pen. E.

ART. VI.—*Cases of fractured skull attended with extraordinary circumstances, successfully treated.* By CHARLES HALL, M. D. of St. Albans, Vt. communicated in a letter to one of the editors.

CASE 1st. The patient was a lad thirteen years of age, to whom I was called, in the town of Fletcher. The skull had been extensively fractured by the limb of a falling tree. The blow was received a little on the right of the crown of the head. Its force appeared to have been directed obliquely forward, as the integuments were lacerated in that direction, and the central portions of the parietal bones so fractured and depressed, as to leave their anterior portions elevated nearly

an inch, so that the finger could be inserted beneath. The wound had bled freely. I did not see him till twenty-three hours had elapsed from the time of the injury. He had not been for any time deprived of reason or perception. Occasionally, however, he seemed inclined to doze. He had vomited several times. Upon examination, I found the wounded integuments inflamed, swollen and very sensible. I divided them sufficiently to obtain free access to the bone. The fractured portions were so interlocked with the sound bone, that I found it impossible to remove or elevate them without employing the triphine. When this was done, and I had removed several fragments, I discovered that a portion an inch in length and half an inch wide, had been driven, together with a small piece of wood, through the dura-mater into the substance of the brain. These also I removed. The bleeding from the lacerated sinus was free. During the operation and after it, the patient continued perfectly to enjoy his senses, but what is most wonderful, he recovered without one unfavourable symptom. Dr. Hall of Fairfax, who attended him, informs me that the brain protruded through the opening in the dura-mater, but the integuments immediately closed over it, and the lad has since perfectly recovered.

Case 2d. The patient in this case was a man forty years of age, living in the town of Franklin. The injury was inflicted by a staging pole falling across the side of his head. He vomited once after the injury, and stupor immediately supervened. On the fourth day, when I was called to visit him, I found him still in a lethargic state. He could, however, sometimes be roused to answer questions, and occasionally raised his hand to his head. His breathing was somewhat laborious; bowels torpid. There was no wound of the skin or tumefaction of the integuments. After consultation I laid the skull bare to a considerable extent; found no fracture nor depression, and the integuments appeared to have been but slightly bruised. The pericranium was *no where detached*, and its vessels *bled freely* when cut. I applied the tri-

phine where the integuments appeared to have been most bruised, and perforated the parietal bone on the left side, embracing a portion of the coronal suture. On removing the piece the blood flowed freely out, and on examining with a probe, I found the dura-mater detached to a great extent, and of a dark colour like that of an ecchymosis. The patient has since been bled freely and often, and, as I am informed, is recovering. The interesting feature in this case is the fact, that the dura-mater was detached from the cranium, while the pericranium was undisturbed.

Dr. Hall will accept our thanks for the above cases. We regard them as interesting and instructive, the former as illustrating the degree of injury which may be sustained without injury to the intellectual functions, and without a fatal result; the latter as demonstrating the fallibility of the criterion which is relied upon, as indicating the condition of the dura-mater. Mr. Abernethy and others inform us, that if the pericranium be firmly attached, and particularly if hæmorrhage occur on detaching it, we may safely conclude that the dura-mater is undisturbed. Ed.

Art. VII.—*Cases illustrating the reproduction of bones; and a recent case of amputation of the lower jaw, with observations on the propriety of repeating similar observations without previously securing the carotid arteries.* By Geo. M'Clellan, M. D. Professor of Surgery in the Medical Department of Jefferson College.

The readers of this journal will probably recollect that the history of a case of amputation of the lower jaw, was published in the number for June, 1824. Since that period I have repeatedly been applied to, either personally or through the medium of letters directed to me from remote parts of the country, for further information upon the same subject. Among several other less interesting objects of inquiry, my

attention has been particularly called to the two following considerations: first, the reproduction of bony matter; and second, the propriety of repeating a similar operation, without previously securing the carotid arteries. As the history of some other cases which have occurred to me, and have not hitherto been published, will serve to illustrate these considerations more forcibly than any thing else I can advance, I will briefly detail them, together with some accompanying observations.

About two years ago, I was called in consultation by my friend Dr. Eberle, to the house of a Mr. Middleton in Race-street, to visit a female patient three years old. The little patient had been afflicted, for several months previous, with a horrible ulceration of the gums and cheeks, which Dr. Eberle had succeeded in arresting, by the administration of muriate of gold and cicuta. The whole inferior maxillary bone, however, was left in a state of necrosis; and the surrounding soft parts had been so completely detached from it, that its size alone prevented it from being extracted from the mouth. By pushing the lower lip downwards we could readily expose the whole front of the jaw, which was soon divided at the symphysis by a metacarpal saw. The two halves were then extracted entire, with the exception of one of the condyles, which was the only portion of the bone that remained sound. The cavity was afterwards stuffed with pledgits of patent lint, to prevent a collapse of the cheeks; and the chin was lightly supported by a few turns of the head bandage. In the course of a few days, the granulations, which sprouted up so abundantly as to fill the whole cavity previously occupied by the dead bone, were completely cicatrized over by an extension of the mucous membrane from each side, and the patient was, of course, dismissed from all further treatment.

I had almost forgotten the particulars of this case until a few weeks ago, when I was called by another medical friend to the lower part of Southwark, in consultation upon the case

of a relative of the same family. I had hardly entered the house before I was accosted by the mother, who expressed her surprise that I did not recognise the little girl who stood before me, as the "old patient," from whom the jaw-bone had been "cut out." Indeed, on the first examination, it was difficult for me to be convinced of the truth, notwithstanding the positive assertions of the mother. The countenance appeared so natural, and the motions of the chin and lips were so perfect, that no one unacquainted with the history of the case could suppose that any part of the bone had ever been removed. To the sense of touch also, the parts presented a firm and well defined bony resistance; and I was assured that the child could masticate her food and articulate her words with great ease and perfection. On looking into the mouth, however, I discovered that the lower jaw was entirely destitute of teeth, the place of which was occupied by an indurated cicatrix of the firmness of cartilage; and on inspecting the conformation of the new bone a little more carefully, the angles were found to be deficient, or rounded off like those of a new-born child. The mental protuberance was also much less prominent than natural; and the shape of the whole mass was that of a bent cylinder, instead of an irregularly constructed bone.

I presume that this case will be received as decisive evidence in favour of the probability of a reproduction of osseous matter, after the removal of almost any bone. Several cases of a similar kind, although not attended with so extensive a destruction of the bone, have occurred to other practitioners. A very interesting one is reported by J. B. Whitridge, M. D. in Doctor Mann's Medical Sketches, in which nearly one half of the same bone was extracted in a necrosed state from the abuse of calomel,* in the case of a young soldier, on the

* From repeated observation I have long since been persuaded that calomel is too often charged with the production of necrosis of the jaw-bones. I am by no means prepared to assert that it does not frequently produce this

northern frontiers, during the late war. A restoration of the lost substance afterwards took place, and the patient was left with a useful jaw.

A case very similar to the one I have related, is described and figured by Decker,† in which full two-thirds of the same bone was taken away. "Ultra dimidiam maxillæ inferioris partem valde cariosam nigram levi cum hemorrhagia ipse chirurgus perterritus omnium summi cum admiratione extraxit, ex quo præter omnium expectationum curatus fuit miser hic et ab omnibus jam derelictus puer." Whether or not it will be inferred from the words "*curatus fuit*," that there was an entire reproduction of bone in this case, I am by no means confident, but it is very certain that without such a reproduction, the boy, notwithstanding the skill of his affrighted surgeon, would still have been "*miser hic at ab omnibus jam derelictus.*"

Other cases are also described in the fourteenth volume of the "*Mémoires de l'Académie Royale de Chirurgie*," for the year 1774. One is reported as having occurred to M. le Guernery in 1729, in which a necrosed piece, extending from above the right angle to the interspace between the first and second molar teeth on the opposite side, was extracted entire. It appears that M. le Guernery himself did not sus-

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disease, but I have seen several cases in which there was at least no reason to believe that any censure should have been attached to the administration of that remedy. In two cases of scrofulous ophthalmia, where no preparation of mercury whatever had been employed, after the subsidence of the inflammation, and the consequent cicatrization of the pustules on the cornea, an extensive necrosis of the superior maxillary bones took place. Aphthous ulcerations of the gums are also occasionally followed by exfoliations from the bones; and diseased teeth frequently induce a mortification of large portions of the jaw in which they are inserted. Necrosis of the long bones, which nobody thinks of ascribing to the use of mercury, differs from the same disease in the jaws, only on account of the sequestrum into which, in the former situation, the diseased part is converted.

† *Vide.* Exercitationes Practicæ Auctore Fred. Decker, p. 582. An. 1695.

pect that the jaw could have been reproduced in this case; but, from his description of the ease with which the patient could open and shut her mouth, use her tongue, and perform the natural motions of her countenance, his commentator, M. Bordenave, concludes that there must have been a reproduction of the lost portion of the bone. "*Cette dernier observation sembleroit prouver qu'il y a eu réparation de la substance osseuse par des sucs auxquels le perioste auroit servi de moule et dont il a pu fournir une partie.*" p. 156.

Two cases are also reported in the same memoir, on the authority of M. Belmain and M. Raygerus, in which even larger portions of necrosed bone were extracted from the mouth; but, on account of the great age of the patients (one being seventy and the other eighty years old) no reproduction of osseous matter followed. Another case, however, was communicated to the academy by Mr. Else of London, on the authority of "*M. Walker Chirurgien en Amerique,*" in which after the loss of both sides of the jaw from the very condyles down to the sides of the chin, the young negro enjoyed good health, and was enabled to masticate without difficulty.

My friend Dr. N. R. Smith, now of this city, has related to me a very interesting case, of the same nature, although not occurring in place of the same bone, on the authority of professor Mussey of New Hampshire. As a full account of it will no doubt be shortly published by the intelligent surgeon under whose observation it occurred, I can only state that the scapula was partially regenerated, after having been torn out from the body by the action of a piece of machinery into which the patient had accidentally fallen. This case is very similar to the celebrated one of Chopart, in which the same bone was partially reproduced after having been entirely destroyed by a necrosis.

A very interesting case, also, occurred to me, last spring, in the person of a young man from Lancaster county, whose

metacarpal bone for the left index finger had been entirely destroyed, with the exception of its condyle alone, by a slow caries. The place of the shaft of this bone was occupied by a scrofulous abscess, which was confined so tensely by the periosteum, as to assume the appearance of an encysted tumour. After the use of a few moxas, and an appropriate constitutional regimen, the abscess was laid open, and the curd-like scrofulous matter evacuated. The cavity soon afterwards became filled with granulations, and closed by a cicatrix. In a very few days after the closure of the abscess, the place began to feel indurated, and before the young man left town, a perfect and useful bone was reproduced, to the great surprise of several of my pupils, who had been in the habit of visiting him occasionally for the purpose of applying the moxas.

On examining into the circumstances which attended the above cases, it will readily occur to the reader that they differ essentially from the ordinary cases of necrosis in the bones of the extremities. No deposition of matter took place around the necrosed pieces so as to sequestrate them from the surrounding soft parts, before assistance could be rendered by a surgeon.* On the contrary, granulations sprouted up from

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* I would by no means have it supposed, however, that a necrosed portion of the lower jaw can never be presented in the form of a sequestrum. Two instances are related in Desault's "*Journal de Chirurgie*," and, as these are the only cases which I recollect to have seen on record, I will briefly notice them. One is given in Vol. I. p. 107, by M. Boulet. The patient was a chasseur of the national guards, thirty-nine years old, whose third molar tooth on the right side had been affected with caries. On exposure through a cold damp night he contracted a cold in the diseased tooth which was attended with the formation of a large abscess in the cheek. Soon afterwards all the molar teeth of that side fell out spontaneously, and the jaw became enormously enlarged. Several fistulous orifices formed, through which the moveable sequestrum could be felt. Desault laid open the cheek and extracted the whole of the ramus of the bone in a necrosed state. "Le sequestre comprenait toute la branche de la machoire, excepté le condile et le sommet de l'apophise coronoide." The bony case which

the cavities previously exposed, by a removal of the bones; among the interstices of which a secretion of ossific particles afterwards took place, so as to reproduce the lost structure.

Sometimes the granulations become converted into a dense ligamentous kind of substance like that which occurs so often between the fragments of a broken patella, or still more frequently around the extremities of a fracture within the cavity of the hip-joint. This is the same structure that was formed in place of the osteo-sarcomatous jaw which I amputated about two years ago; and it is generally found to intervene between the separated parts of a bone in the situation of a false joint. It sometimes becomes indurated so firmly as to answer the purposes of the bone in place of which it has been deposited; and not unfrequently it undergoes a process of real ossification. This conversion of granulations into ligamentous and bony matter, has been too little noticed by physiologists. Many physicians still appear to advocate the old hypothesis, by which ossification was supposed to proceed from successive depositions within the periosteum, in the same manner as the ligneous structure of trees is constituted from the interior lamina of their bark. To be consistent with such a doctrine they must, of course, suppose that no bone can be regenerated after it has once been removed *together with its periosteum* by any surgical operation. This is probably the reason why I was unsparingly, and, as the event has since proved, unreasonably censured by some

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had been formed around the necrosed part afterwards contracted and solidified, and the patient was restored to the perfect use of his jaws.

The other case is reported by M. Devers, p. 179, Vol. II. A little girl, ten years old, was attacked, during her convalescence from the confluent small-pox, with an inflammation of the left side of the face, which was followed by an abscess immediately over the ramus of the jaw. Three years afterwards, when she was unable to close the jaws on account of the tumefaction which surrounded a large sequestrum, Desault extracted the whole ramus, together with the condyle and coronoid process. The little girl recovered the perfect use of her jaw and her natural appearance.

of my brethren for amputating so much of the jaw in the case which was published in the first number of this journal.

In regard to the last of the interrogatories, in reply to which the present communication has been drawn up, it may be observed that any argument in order to prove satisfactory must be derived from experience. To tie up a carotid artery, however, before the successful performance of any operation, can only prove that the life of a patient is able to resist a double hazard, while his surgeon is gaining all the advantage that can be realized from such a precaution. Although many respectable surgeons have deemed it necessary to take this precaution before undertaking important operations about the throat and jaw, it does not appear that they have been able to establish their opinions. When we have ascertained that at least as many successful operations of the same kind have been performed without interfering with the main arteries, it can hardly be expected that we should agree to the necessity or even propriety of such a preliminary. A Shylock would, no doubt, be highly pleased with the suggestion of a plan which would enable him to slice out pounds of flesh and bone without the danger of shedding blood; but a surgeon has no reason to dread the effects of a trifling hemorrhage. A little manual dexterity will enable any one to secure the bleeding arteries as fast as they may be divided; and a skilful operator can generally avoid interfering with the larger class of blood-vessels. He who is not conscious of possessing these qualifications, should never undertake any important operation.—But I will not proceed further with this subject, lest I betray more warmth of feeling than would be either prudent or becoming. I will only state the result of my own experience, which has been altogether in favour of undertaking such operations about the throat and jaw as may ever be considered necessary, without resorting to the previous application of a ligature around the carotid.

I have extirpated almost all the glands about the throat in

succession,*—the whole of the sub-maxillary and sublingal, the lower portion of the parotid and many of the neighbouring lymphatic glands; I have repeatedly had occasion to expose the carotid artery and jugular vein; and I have even dissected away tumours from the very coats of these vessels, without encountering either any immediate danger or subsequent inconvenience. As I have, with similar success, recently performed an operation which has been considered, both in this country and in Europe, to require a previous interference with the carotid artery, I will detail it at full length.

Mr. Joseph Brown came to this city in the month of July last, from Orange county, New York, with an enormous carcinomatous tumour which occupied the lower part of his right cheek and extended over a large portion of the throat, on the same side. It commenced on the inferior lip, in the early part of the year 1820, and gradually extended downwards and backwards over the base of the jaw. It was very distinctly circumscribed, and presented a firm cartilaginous kind

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* In the case of a young butcher, J. Kunkle of Penn township, from whom I removed a frightful carcinomatous mass, extending from the lip very low down into the left side of the throat, I exposed the bifurcation of the carotid and secured, in succession, all the branches of the external trunk, with the exception of the occipital artery. In removing the sub-maxillary gland, I was necessarily obliged to secure the facial artery close to its origin,—in dissecting out an enlarged lymphatic gland, above and behind the former, I encountered the lingual artery;—and in raising up the lower portion of the parotid gland, which also was much enlarged and indurated, I had to secure the common trunk of the temporal and internal maxillary arteries. The stump of the external carotid was left at the bottom of the wound like the trunk of a tree divested of its branches. Beside all these vessels I encountered a large vein, the one which returns the blood from the sub-maxillary and neighbouring glands, and secured it just at its junction with the internal jugular. The patient recovered soon afterwards, with much less deformity than could have been anticipated by any one who had seen him before the operation.

I shall have occasion to detail several other operations which I have performed about the throat and neck, in a future communication for this journal.

of structure to the touch. Its margin occupied almost the whole substance of the lower lip, which was drawn very much towards the right by the growth of the tumour in that direction; it then passed downwards across the cheek, over the base of the jaw, just before its angle to the throat; finally, after extending forwards just below the jaw, it surmounted the right side of the chin, and terminated near the left commissure of the lips. The lower portion of the tumour which extended into the throat was less prominent than the part above; and on a careful examination I ascertained that it was distinctly separate from the original tumour on the face—being made up of secondarily enlarged lymphatic and conglomerate glands. The whole surface of the lip and upper portion of the tumour had been ulcerated for several months previously, from the surface of which a very offensive ichorous matter was constantly discharging. On introducing a probe through the centre of the ulceration, the subjacent bone was found to be carious, which indeed might have been suspected from the firm adhesion of the tumour to the side and base of the jaw. Severe lancinating pains had been experienced by the patient for a long period, and his appetite had become very much impaired in consequence of the intolerable fœtor of the discharge. His strength, however, and general health, were in other respects uncommonly good. There had been no hectic fever; nor had his countenance assumed that shrunken, cadaverous appearance which is so characteristic of a constitutional affection in such cases. The disease had made but very slow progress during the preceding few months; and the pains were by no means increasing in severity. He was only forty-two years old, and felt not a little anxious to protract his life for the benefit of a rising family.

On the 28th of July, I performed an operation for his relief, in the hall of the infirmary of Jefferson Medical College, in presence of the professors and pupils of that institution. An incision was commenced at the left commissure of the

lips, and carried downwards, over the symphysis of the jaw and right side of the thyroid cartilage, to the anterior edge of the sterno-mastoid muscle. A second incision was next carried from a little above the right commissure of the lips, around the opposite margin of the tumour, and across the angle of the jaw, until it reached the termination of the former incision. The whole mass of the tumour was then dissected downwards from the surface of the jaw, and deeply from the throat beneath, until all the parts that were included between the two incisions had been removed. By this dissection several enlarged lymphatic glands were removed from the throat, together with the original tumour on the cheek.

After securing the facial and coronary arteries, I next proceeded to examine the condition of the jaw, which was deeply affected with caries. Having satisfied my assistants that it was absolutely necessary to remove it, I divided it by the metacarpal saw in two places,—1st, at the symphysis, between the two front incisors, and 2dly, a little before the angle—between the second and third molares. On dissecting out the intermediate piece of bone, the facial artery was again divided and secured; after which three more indurated, although not much enlarged, lymphatic glands were removed from the throat. As the surface of the sub-maxillary gland appeared to be discoloured and tumefied, all that portion of it which lay on the lower surface of the mylo-hyoideus muscle was removed;—the remainder, which accompanied the excretory duct above the same muscle, being evidently sound, was left undisturbed. Of course the facial artery was again laid open by this part of the dissection and secured, for the third time, much nearer its origin than before. Although the sublingual gland was so fully exposed that it protruded very much, it was not deemed necessary to excise it, on account of its healthy appearance.

The soft parts being now satisfactorily disposed of, I proceeded to examine the posterior extremity of the bone, the cancellated structure of which appeared somewhat disco-

loured, and bled profusely. As its condition was so suspicious, and as it moreover formed an inconvenient projection, which the integuments could not be made to cover, I applied the saw again, just at the angle, and removed about an inch more of the bone, together with the last molar tooth which was implanted in it. The integuments were then approximated, as much as possible, by three interrupted sutures, by means of which the cut extremities of bone were brought much nearer together than before, and the size of the wound, also, was greatly diminished. Some strips of adhesive plaster, and pledgits of patent lint, secured by a head bandage, completed the dressing, after which the patient was able to walk about with great ease.

In two days after the operation, as the sutures produced a painful degree of tension, and displaced the two portions of bone very much, I removed them, and trusted to the adhesive strips and bandages alone for drawing the opposite sides of the wound together. From that time he complained of no particular inconvenience, and continued to recover very rapidly. In less than ten days the cavity in the throat was entirely closed, and the wound in the face was greatly contracted in size. On the third week he was so nearly recovered from the effects of the operation that he insisted on returning to his family. The granulations which had sprouted up between the two extremities of bone, were then almost cicatrized over in continuity with the integuments, and the deformity was surprisingly diminished.

A letter, dated Orange county, Sept. 2d, has lately been received from Mr. Brown, which states that the wounded parts are now almost wholly restored and healed, and that he has the full power of mastication and articulation.

As it is by no means impossible that there may eventually be a return of the disease in this case, I do not presume to offer a complete history of it in the present communication. The final result will be stated in a paper which I shall hereafter

publish on the probability of affording relief by operations for the removal of specific tumours.

In conclusion, I cannot avoid expressing some degree of surprise at the fact that intelligent surgeons could ever have anticipated the prevention of hemorrhage, in such operations as I have detailed, by previously securing either of the common carotids. The anastamoses between the branches of all the main arteries of the head are so large and frequent, that I question whether the division of any one of them would not be attended with a troublesome hemorrhage, even after the closure of both carotids. In every case in which the details have as yet been published, it appears that all the divided arterial twigs required the application of a ligature, whether the circulation of blood through their parent trunk had previously been intercepted or not.

ART. VIII.—*An account of the Pinta, or Blue-stain, a singular Cutaneous Disease prevailing in Mexico.* By SAMUEL M'CLELLAN, M. D. Communicated in a letter to one of the Editors.

Bristol, Pennsylvania, Sept. 6th, 1825.

DEAR SIR,

IN compliance with your request, I send you an account of a disease at present prevailing in a certain portion of the Mexican territory: but as I write from memory, without notes, and only from such information as could be obtained from a few short excursions made into that part of the country, with other objects in view than an investigation of the disease, I cannot expect to give a satisfactory account for our profession, but only such general observations as may excite the attention of others who may hereafter visit that country, to investigate the subject more fully.

From the information which I obtained from the most intelligent of the natives, I can only state that the disease, denominated by them the *Pinta*, or Blue-stain, made its

appearance in the neighbourhood of the Volcano of Jorullo,* in the northern part of the province of Valladolid, shortly after its first eruption, and has gradually extended south, through the whole of the *Tierra Caliente*,† as far as the town of Mascala on the road from Mexico to Acapulco, and I believe still further south. It has generally prevailed among the lower class of people, who are of a dark colour; and is said to commence with slight rigors and nausea, followed by some degree of fever. These symptoms last only for a few days, when, on their subsiding, discoloured spots are discovered upon the face, breast, and limbs, of a lighter or yellowish appearance, which gradually change to a blue, and in advanced stages to a black—almost resembling the negro skin. In this stage the skin also has a rough and scaly appearance, and is somewhat inflamed, forming, when injured, either by accident or the stings of insects, deep and foul looking ulcers, with hardened and, in some cases that I saw, inverted edges, which the people themselves consider incurable. The perspiration of these persons is peculiarly offensive; but I believe their general health is not much affected, at least I did not understand that they suffered more from other complaints than those who were free from it. There is at present in the city

* The Volcano of Jorullo, situated upon an estate of that name, broke out in the year 1775, from a level plain, and rose in one night to the height of between three and four thousand feet. Arrowsmith has given the name incorrectly in his map, by attempting to spell it in English as it is pronounced by the Mexicans.

† The Tierra Caliente, or hot country, is divided from the *coast*, (a narrow tract of land, so called by the natives, extending along the Pacific, from two to six leagues in width,) by the *Sierra Madre*, or Mother Mountains, a rough and broken chain, which running parallel to the coast, is from thirty to seventy leagues across. This country lies between the Mother Mountains and the foot of the Great Cordillera of Anahuac, and extends through the provinces of Valladolid and Mexico, into that of Puebla. It varies in width from thirty to sixty miles. The surface is broken by numerous ridges of high hills, with the vallies lying around their bases, and communicating with each other, well watered by numerous rivers. The soil is very fine, admitting the cultivation of all the products of a tropical climate.

of Mexico a regiment composed of persons affected with this disease, denominated the Pinta-Regiment, and officered by white men, who are appointed by government. A soldier's life, of course, subjects them to fatigue and privations, which, however, they appear to endure without more complaint or injury than others. They very generally, however, in common with all others who use the same diet,* are affected with dyspeptic complaints.

The disease is said to be infectious, and facts seem to coroborate the account. I have seen persons who were born and bred up in the higher districts, where it is not known except by report, after having lived for a few years in the low country in habits of intimacy with the people, return with the disease. Nurses who are infected with it, and have been employed in the higher districts, have communicated it to children; but these, when treated in the first stage by light cathartics, and some of the active diaphoretic plants with which that country abounds, are said to have been cured.

There are many persons of the higher classes, however, who have resided nearly the whole of their lives among the pintoes, and have even employed them occasionally as servants in their houses, without contracting it;—but such have always enjoined the greatest cleanliness both upon themselves and servants, by repeated bathings, ablutions, &c. Others who have not observed these precautions have not been so fortunate; but among these I have not seen the disease so far advanced as among the lower classes. I do not recollect of having myself seen a single instance where the disease had been contracted out of the infected district, although these people are frequently met in almost all parts of the country west of the city of Mexico, passing and repassing with their produce, and other articles for sale: nor is the disease known otherwise than by name on the Pacific coast, or in other ad-

* The lower classes of people in Mexico live chiefly on corn-cakes and meat cooked with lard and red-pepper.

jacent tracts of country which are separated from the *Tierra Caliente* only by intervening ridges of mountains.

Whether this disease is ever communicated by propagation or not is very difficult to determine. In all the families in which I witnessed it, the children were infected; but whether it was inherited, or communicated to them by contact, is quite uncertain. I have seen it in infants at the breast. Others were said to have been free from it until a year or two of age. Such are always brought up, as they afterwards live, in extreme filth. It should be recollected also, that their diet is far from being delicious or wholesome.

It appears to me that this disease cannot with propriety be identified with leprosy. If it be, however, it must certainly be considered as a remarkable variety, and of an uncommonly mild form. I regarded it as merely a cutaneous disease, as I saw it affecting no other part of the body. The people believe it to be distinct from leprosy, which disease is not unknown among them, since I was called to see two reputed cases of it, at Rosario, near the district of the Pintoes. An elder brother of these two had been previously sent to the mountains by the alcaldes of the village, to prevent an extension of what they considered to be the genuine leprosy.

The physicians of the country, in whom however but little confidence is to be placed, regard the pinta as a specific disease, and as generally incurable. I never heard of even an attempt to cure it in the low country. It was at Temascaltepec, five or six thousand feet above the level of the ocean, that it was said to have been cured in the cases of infants when taken from their nurses.

I regret that my memory is so little able to furnish you with a history of such particulars as would assist you in forming a more accurate opinion of the nature of this singular disease. If some notes of the daily observations which I made in repeated tours through the hot country, and which I accidentally left behind me on leaving the city of Mexico,

should ever arrive, I will take pleasure in forwarding them for your inspection. In the mean time, I remain,

Yours, very respectfully,

S. M'Clellan.

Art. IX.—*An account of a New Instrument for the extraction of coins and other foreign substances from the œsophagus.* By Nathan Smith, M. D. Professor of Surgery, &c. Yale College.

I have twice been called upon to remove coins from the throats of children. In both instances, they had descended to near the inferior extremity of the œsophagus, where the passage is a little narrowed, just before entering the stomach. Of course, they were entirely beyond the reach of forceps, or any instrument which might be employed to grasp and thus withdraw them.

The instrument which the exigencies of the case suggested, and with which I succeeded, was unlike any thing which I have known to be employed for a similar purpose. A very few words, with the accompanying plate, will be sufficient to give an idea of it.

The shaft of the instrument is a rod of whalebone, twenty inches in length, and of the size of a small quill. Half an inch from one extremity there are attached, at acute angles, like the barbs of an arrow, two wings of silver, an inch and a quarter in length, a quarter of an inch wide, and so thin as to be very elastic and flexible. The extremity, which stands off from the instrument, is convoluted so as to render it blunt, and is a little curved inward toward the shaft of the instrument. The two wings are pinned to the shaft of the instrument, and may be continued over its extremity, which should terminate with a bead or obtuse point.

From the position of the œsophagus between the trachea and spine, the faces of the coin present forward and back. When the instrument is thrust down the œsophagus, avoiding the glottis, as may be done without difficulty, and presenting

the barbs one forward and the other back, it will pass either behind or before the coin, and the barb will spring beyond it, and catch it between itself and the shaft, when it may be very easily withdrawn. The manner in which the shaft is embraced by the œsophagus above, prevents its slipping off laterally. In both the cases alluded to, I accomplished the extraction of the coin without any difficulty, and at the first trial. In the second case, after I had once raised the coin into the mouth, the child instantly swallowed it again, though I had almost seized it with my fingers. It returned to the same place, and I again withdrew it at the first trial.

The barbs are made so thin that should they catch in any of the follicles of the œsophagus, they would be everted sooner than rupture the membrane.

A reference to the accompanying plate will enable the reader to form an idea of the instrument.

ANALECTA.

1. *Dr. Gometz on the Tænifuge properties of the Pomegranate root.*—Among the East Indians, the bark of the pomegranate *(punica granatorum,)* is said to have been employed from time immemorial in cases of tænia; and the late accounts we have of its efficacy by European writers, would seem to establish its character, as incomparably the most important tænifuge we possess. Dr. Buchanan,* who practised for many years at Bengal, was the first who made this article known in Europe as a remedy in tape worm. Some time after Dr. B's. communication, further information was given to the public on this subject, by Mr. Breton, surgeon to the Ramgur battalion in the East Indies.† Mr. Breton gives an account of eight cases of tænia successfully treated by the pomegranate bark. He employed it in the form of decoction, made by boiling two ounces of the fresh bark of the root, in a pint and a-half to three-fourths of a pint. Of this a glassful was administered every half hour, till four or five doses were taken. He also gave it in the form of powder in doses of twenty-five grains, repeated every hour. Dr. Gometz has detailed fourteen cases which were promptly and completely relieved by this medicine. Dr. G. thinks that the best time for administering this vermifuge is when joints of the tænia are observed to pass off with the stools. According to his experience, it is dangerous to employ the bark in larger portions than three ounces to the quantity of water mentioned above. When given too largely it produces nausea, vomiting, diarrhœa, vertigo and faintness. If these symptoms appear, the medicine must be omitted for four or five hours, when it may be resumed in proper doses. If one pint of the decoction fails to expel the worm during the first day, the same quantity should be administered on the succeeding day. The worm very seldom resists the operation of the remedy longer than two days. The dry bark is much stronger than the fresh,—one ounce of the dry bark may be considered equivalent to one ounce and a-half of the fresh.

This medicine was employed successfully in a case of tænia in this city by Dr. Mease.

2. *Desperetz on Animal Heat.*—The Academy of Sciences of Paris have awarded the prize of three thousand francs to M. Desperetz for his dissertation on Animal Heat. The general result of his inquiry is: that in herbiverous animals 0,82 parts

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* Edinburgh Medical and Surg. Journal, V. III. p. 301.

† Medico-Chirurgical Transactions, V. XI.

of the animal heat is evolved by respiration, in carniverous animals only 0,78 parts are evolved by this process.

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3. *Menstruation through the nipples of the mammæ.*—Dr. Rudolph of Cottbus, has noticed a remarkable instance of vicarious menstruation from the breasts.

A young woman aged fifteen years, of a delicate habit of body and of rapid growth, in whom menstruation had not yet commenced, experienced considerable pain and swelling of the nipples, which was succeeded by an oozing of blood from these parts of about twenty-four hours continuance. The pain, swelling, and oppressed breathing, now subsided. In four weeks after this occurrence, the same train of phenomena recurred; and subsequently returned several times in the same manner, at intervals of four weeks. By the employment of warm bathing, and other means calculated to direct the menstrual effort upon the uterine system, the menses were brought on in their regular form, and the former affection of the breasts did not return.—*Hufeland's Journal for Nov.* 1824.

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4. *On the presence of water in the lungs of drowned persons.*—If there had not been something defective in the mode of examination of bodies found drowned, the presence or absence of water in the lungs after such an accident would not have remained to this day nearly as unsettled a point as it was more than a century ago. The trial of Spencer Cowper, for the murder of Sarah Stout, which took place at Hertford in 1699, affords a curious specimen of contradictory evidence on this subject: the witnesses were, for the most part, unprovided with any positive evidence drawn from the inspection of the lungs of the human subject after drowning; and we think we could point out more than one county in England in which the verdict of "Found drowned" is so often given without the body being opened, as to cause the experience of medical witnesses to be quite as limited in the year 1825. In Professor Mayer's paper we have a long list of authorities both affirmative and negative; and the question is of so much interest in a medico-legal point of view, that every attempt to make it the subject of research in the human subject, if not of experiment upon the lower animals, deserves attention and encouragement. Professor Mayer, having made many experiments on animals, and invariably finding a small quantity of water or bloody serum in the lungs, repeated them, with the sole difference of drowning the animals in water containing colouring matter. He asserts that the results were still the same, that he found a fluid in the air-passages, having the colour of the fluid in which the animal was drowned: in one experiment a cat was immersed in water to which hydrocyanate of potash had been added, and kept in five minutes, being taken

out before it was dead, to prove that the fluid actually entered the trachea during life: a portion of the trachea was cut out, a glass tube, previously dipped in a solution of hydrochlorate of iron, was passed into it by the opening, and a deep blue precipitate was immediately formed. The lungs were full of froth, which afforded a similar test. The experiment was repeated on another cat, with precisely the same results.

From fifteen experiments, which are detailed, Professor M. deduces the conclusion that water does penetrate into the lungs of drowned persons during drowning. He refers to the experiments to prove that this takes place whether the animal remains a long or a short time in the water; whether it is taken out living or dead, or several hours after death; whether the animal is drowned in hot or cold water; whether it is kept wholly under water or allowed to come occasionally to the surface; whether pure water or coloured fluid, or some chemical re-agent, is employed; and equally in different kinds of animals. Lastly, he adds, that he has examined several bodies of drowned people, and has always found a more or less aqueous froth or an actual liquid.

The importance of this question does not entirely rest on its interest with a view to medico-legal investigations: it has some reference to our attempts to resuscitate drowned persons. For if more or less water always penetrates into the trachea and its ramifications, or even if this happens occasionally, even when the body has not been long in the water, it may be necessary to disembarass the air tubes of such an obstacle to their due inflation. In an example recently witnessed by the writer of this notice, it was the belief of all the professional assistants, that their attempts to restore respiration were materially impeded by this circumstance, although permission could not be obtained to verify the fact by an examination. Professor Mayer has found, by several experiments, that, by using an elastic tube and syringe, he could draw out any fluid from the trachea as far as its division, but could not command what was situated lower. This, however, will generally be sufficient, as all the fluid in the bronchiæ will be rapidly absorbed. According to some experiments formerly published by him in the *Journal Complementaire*, fluids poured into the lungs were found two minutes afterwards mixed with the blood of the left ventricle; in four or six minutes mixed with the serum of the pleura and pericardium; and at the end of five or eight minutes in the urine.—*Lond. Med. Repos.*

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5. *Diagnosis between Irritation and Inflammation of the Mucous Membranes of the Bronchiæ.*—M. Nauche thinks he has discovered a chemical test of bronchial inflammation in the secretion from the mucous surfaces. In the natural state, or where

there is merely *irritation*, the mucous secretion he has found to be acid, while, on the other hand, when actual inflammation obtains, the nature of the secretion is changed, and it becomes alkaline. The two states are readily recognised by turnsol paper, which turns red with the one and blue with the other.

M. Nauche has examined the expectoration, with respect to its acid and alkaline character, in the diseases of the respiratory organs. He believes, from this inquiry, that they may be divided into matter produced by irritation—an increased secretion of the mucous follicles, which line the membrane of the air-passages, and into matter, or expectoration, which results from their inflammation. He has observed that the white, mucous, frothy expectoration, which is frequently brought up in large quantities by persons in a state of agony, has always an acid character, when the air-passages have not been the seat of previous disease. This character is likewise found in the white, frothy expectoration which occurs during the whole continuance of pleurisy, whether acute or chronic; and at the commencement of pneumonia, when the matter expectorated is white, or even yellow. It is often lost in the course of this disease, and reappears towards its decline. The acid expectoration is likewise found in emphysema of the lungs and scrofulous phthisis, when the tubercles are but little developed, in the state called crude. It is evident, in all these cases, that the mucous membranes which furnish the expectoration are only in a state of increased excitement, and that they are in no degree inflamed. M. Nauche has likewise found acid expectoration in certain advanced cases of phthisis. He believes that this depended upon these matters being the product of an increased secretion of the mucous membrane lining the excavations formed by the tubercles.

The expectorated matters, on the contrary, are always alkaline in inflammation of the mucous membrane of the bronchiæ, and in all the cases designated by the names of acute and chronic colds, or mucous phthisis *(phthises muqueuses.)* Although this expectoration is not regarded as purulent, it is nevertheless a kind of pus peculiar to inflammation of these membranes, and analogous to the purulent serosity which is furnished by serous membranes when in a state of inflammation.

The expectoration likewise becomes alkaline in peripneumony, when the inflammation of the pulmonary tissue communicates itself to that of the mucous membrane of the bronchiæ; and this secretion is the product of the inflammation of these two tissues.

The expectoration is likewise alkaline in phthisis pulmonalis, in the second or third stage, when the tubercles become broken down. It is usual, in such cases, to find the internal membrane of the lungs deeply altered.

It frequently happens, particularly among phthisical patients,

that both these kinds of expectoration are to be found in the same vessel. That which results from an augmented excitement comes up most easily, is white, frothy, and acid; the other is brought up with difficulty, is yellow, thick, and alkaline. In this disease, when the patient has only the former kind of expectoration, his life is often in the greatest danger.—*Medico-Chirurgical Review.*

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6. *Fatal Asthma from Affection of the Glottis.*—The researches of Magendie and others, teach us that, 1st, the constrictor muscles of the glottis are supplied by filaments from the superior laryngeal nerve, whilst the dilator muscles are supplied by branches from the inferior laryngeal or *recurrent* nerve; 2d, that the glottis dilates during inspiration, and is closed, almost hermetically, when we make any considerable muscular exertion, as in lifting a weight, for example. Every one must have observed that the breath is firmly retained when we make any great straining exertion with the muscles, especially of the upper extremities. These physiological points are requested by our author to be borne in mind, as they will come in to an explanation of the following case:

Case.—Michel, twenty-two years of age, a servant, was received into the hospital Cochin, the 26th of June, 1822, having been discharged only eight days previously from a Maison de Sante, where he had been under treatment for two months, for what was called a putrid fever. The following symptoms were now observable, viz. considerable hoarseness—violent pain in the throat—great sense of suffocation on the least muscular exertion—tongue white—appetite good—pulse frequent and small—face pale and emaciated—chest sonorous, except at the inferior part of the right side—respiration audible in all parts of the thorax—nothing remarkable in the action of the heart. The same symptoms were observable the following day. He expectorated abundantly. At ten o'clock in the evening he was obliged to start from his bed—his inspirations being profound and frequent, accompanied by a peculiar hissing noise. The patient appeared terrified, his eyes starting, and dreading instant suffocation, which indeed appeared inevitable. His pulse was scarce perceptible. These alarming symptoms abated a little in the night. *June* 28. Still great anxiety. Blister to the region of the larynx. In the course of the day, a return of the sense of suffocation, with a horrible state of anguish, during which the patient tore the blister off his throat, and appeared strangling—his head erect, and his neck stretched as much as possible. 29th. Sense of strangulation still more distressing than ever—he was constantly putting his hand to his throat, as if to remove something that was strangling him. He cried for prompt relief from his dreadful anguish, his eyes starting from

their sockets, and his countenance an image of despair—the whole of the respiratory muscles in a state of convulsive orgasm. These horrible symptoms continued till four o'clock in the morning of the 30th, when death put an end to his sufferings.

Dissection.—An abscess was found situated at the posterior part of the larynx, and also on the sides, the cavity of which was capable of containing a filbert, and its internal surface smooth. The cricoid cartilage was denuded. On closer examination, it was found that the abscess extended round the cricoid cartilage. The crico-arytenoid muscles were of a greenish colour. The arytenoid cartilages were confounded with the muscles above-mentioned, which were in a state of disorganization. No nerves could be traced in them. The arytenoid muscle, however, and its nerves, were well preserved. The glottis was not above three or four lines in length (its rima.) The articulations of the arytenoid cartilages with the cricoid were destroyed. The mucous membrane of the larynx was pale, and the cavity itself filled with reddish and frothy mucus, which was also found in the trachea and bronchia. The mucous membrane of the lungs was, generally speaking, of a deep red colour. The inferior and posterior portion of the right lung was hepatized, but all the rest of the lungs sound. There was no disease in any other part of the thorax. *In the small intestines were found numerous ulcers perfectly cicatrized.—Ibid.*

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7. *Practical Observations on Mercurial Fumigation.* By A. Gibson, M. D. Staff Surgeon.

"Femur tumentibus
Exile suris additum."

Of all the duties of the military surgeon, the most constant and unsatisfactory is that which calls upon him to administer to the chronic forms of disease, usually classed in our medical returns under the specious term "Anomalous." It is the obstinacy of these, and their perplexing variety, which, no doubt, so long ago conferred the epithet opprobrium on many of them; for, after having withstood the most accepted judicious medical treatment, and been unprofitably subjected to the not-minor benefits, in many instances, of long ease and nursing, they have usually at last been abandoned, to be ranked among the incurables, and their victims exiled beyond the pale of science.

But it has, doubtless, been observed, by every medical officer of a certain military experience in India, how frequently those men again offer themselves to the public service, full of energy and activity, and free from every physical disqualification, amply competent (as they afterwards prove) to its most arduous duties. This observation was rendered particularly remarkable last year, whilst in Rhandiesh, by the return of a Sepoy, after a short leave of absence, supple and active, although emaciated,

who had left the hospital crippled and nearly helpless. The fact was too striking not to make an impression, and academic honours blushed for a moment to be outdone by some illiterate Paracelsus of a Mahratta hamlet. It was very evident, from the state of the gums and mouth in this case, that mercury had been used in some form, which had acted upon them with more severity than, in similar cases, is thought by British practitioners to be required, and that the debility at the same time was by no means such as would have followed any course of mercury prescribed *secundum artem*, to produce equal effects. But the Sepoy was too ignorant, or his *hukkheem* too cunning; for I could not ascertain that mercury had actually been given, but only that he had been exposed to fire and smoke; and drank some medicated decoction, during which his mouth had become very sore, and he himself rapidly convalescent.

It was on being foiled in the treatment of some of the following cases, that I was led to consult the judgment of Dr. Milne, the superintending surgeon of the division, on the probable good effects to be derived from mercurial fumigation, who, ever unwearied in his zeal for the promotion of medical improvement, procured for me a skilled native, to whose method alone I entrusted my earlier cases; which, with others, equally fortunate, in my own immediate charge, form the subject of this communication.

Cases successfully treated by Mercurial Fumigation.—Koondallee Sackpal, Sepoy, admitted into hospital, with rheumatism, on the 24th of June. Pain greatest in the right elbow-joint, which was considerably swollen and stiff. All the usual means recommended in such instances failing, mercurial fumigations were tried the beginning of August, which being administered fourteen times, or morning and evening for seven days, he was returned for duty on the 15th of that month: being detained in hospital the last few days, till salivation ceased, and the mouth became well.

Balnac Darnac, admitted on the 28th of June, with rheumatism. Pains general, but greatest in the ankle-joints, which were swollen and rigid; the swelling and stiffness extending over the foot to the toe. The usual remedies failing, fumigations were begun the beginning of July, applied fourteen times; and on the 11th of August he was dismissed.

Doon Sing, Sepoy, admitted into hospital, with syphilis, on the 17th of February. A phagedenic chancre, of a most obstinate and threatening nature, was the most difficult primary symptom to treat. The usual mercurial course was followed by general pains, and all the untoward symptoms denominated "anomalous." Unsuccessful trials were made of the alteratives considered the most active,—such as oxy. mur. hydr., pil. hydr., sarsaparilla, ipecacuanha, alone and in many varied combina-

tions, with opium; blisters, liniments, cupping, frictions, and bandaging, were long and ineffectually used. He was bedrid, and his general health greatly impaired, from suffering and want of rest, when mercurial fumigations were resorted to. He is, (August 21st,) after fourteen applications, walking actively about the hospital, complaining only of a sore mouth, and very slight stiffness of the ankle-joints; which, considering the dampness of the season, is not to be wondered at.

October 27th.—Perfectly well.

Goordat Sing, Sepoy, admitted with venereal, on the 28th of February. The early history of this patient is very similar to that of Doon Sing. The secondary character which his disease assumed was so much the more formidable, however, from swellings that from time to time appeared on different parts of his body. The principles of the treatment were the same. The following were the prominent symptoms and appearances in the beginning of August, when mercurial fumigations were used:—General health greatly impaired; bowels irregular; appetite bad; habit emaciated; occasional nocturnal attacks of fever, with intense thirst; constant lassitude and listlessness; considerable enlargement of the os calcis; swelling of the digital extremity of the middle metacarpal bone, and a bump on the spine of the scapula: these enlargements acutely sensible to the touch. As the system became affected, after a few fumigations, all external marks of disease began to vanish; the pains, from the first, became blunted; and, after seven days use of the remedy, he had no complaints. At present (August 21st,) he is active and supple, and, but for the inclemency of the season, would be on the convalescent list.

October 27th.—Stout and well.

Shaik Moiddeen, Sepoy, admitted, with rheumatism, on the 9th of May. Painful swelling and stiffness of the joints of the lower extremities; for which the usual active and palliative means were vainly used. Commenced fumigations the beginning of August, which were employed, as in the other cases, fourteen times. Was severely salivated. Dismissed cured.

Rodrigues — was admitted on the 1st of August, with nocturnal pains, and a scabby eruption of the legs and arms. Was lately under mercury for a virulent chancre, for the usual time. After seven days' fumigation, the pains subsided, the eruption disappeared, and he was dismissed.

N.B.—September 30th. This patient, a poor man, left the hospital in damp, rainy weather, whilst under mercury; and has since sought relief for pains, most probably to be thus accounted for; and, having been again successfully fumigated, is now free from complaint.

The following cases formed the subject of a second communication to the superintending surgeon.

August.—A female, æt. seventeen. Pains and swelling of the lower extremities, (the former, worst during the night:) general pains and stiffness of the joints; great difficulty in rising, when once seated; emaciated; colour sickly; appetite bad. Has been ailing above a year. Was fumigated fourteen times; mouth became only tender; salivation very trifling. Cured.

Remarks.—Although the history of this female was imperfect, the symptoms afford grounds for suspecting a venereal taint, but she persists in never (to her knowledge) having been diseased. But, venereal or rheumatic, the case is valuable, the cure being complete.

A commissariat servant, was supposed to be cured of chancres about two months ago, after the usual course of mercury, in the form of pill and friction. For a week past, has been troubled with a thickening and dryness of the cuticle, on the points and under the nails of his fingers, which peels off without discharge. A dry eruption, also, between the fingers and toes, and on the palms and soles, which detaches itself, in like manner, in the form of thickened cuticle; in some spots on the latter leaving a little rawness; a suspicious excoriation on the inside of the prepuce; appearance unhealthy. Used fumigation fourteen times. Mouth made very sore, and considerable salivation. Cured.

Remarks.—This Portuguese being of irregular habits, it is probable that the appearances described were the sequelæ of a prior and more confirmed pox than the primary symptoms alluded to; of which he was, in all probability, as perfectly cured as he could be, in a diseased habit. The mouth became so sore, that the head was latterly excluded during the progress of fumigation.

August.—A European. A general, vesicular, watery eruption over the body, itchy, and disturbing rest: a swelling in the groin, of long standing, and glandular swelling on the right side of the neck; phymosis, and discharge; general health considerably affected; appetite bad; sleepless; spirits greatly depressed. Has used mercury at various times, for suspected venereal, in the course of the last two years. The eruption first appeared between two and three months ago, for which ointment and washes of various kinds were applied. Latterly has been taking corrosive sublimate, and using mercurial frictions, with partial good effect on the eruption, but evidently with injury to the constitution. Fumigated fourteen times. Mouth sore and salivated. Cured.

Remarks.—I fancy so obstinate a complication of symptoms cannot be assigned to any other cause than a latent venereal taint. A proof, perhaps, of the system, as well as the mouth, being early affected, or at least favourably influenced by the mercury, was the healthy sleep which followed four fumigations. This amendment, however, was disturbed by a little gastric de-

rangement, which an aperient immediately rectified. The profuse sweating, which in every instance has attended the process for a shorter or longer period, in this case soon abated; and a slight irritation of the eyes, from the vapour, was the only inconvenience afterwards. The little phymosis remaining seems to be natural. The sore mouth occasioned some suffering; but the feelings of rude health and good spirits now enjoyed, are gratefully valued by this patient.

August.—A poor patient. Considerable inflammation, with swelling and slight suppuration, above the ossa nasi; two small ulcerated openings between the cheek and right ala, discharging matter and maggots; a purulent discharge from the nostrils; œdema of the lower eyelids, closing both eyes; shooting pains of the cranium. Was fumigated fourteen times. Mouth very sore, and severely salivated.

Dismissed, cured, 1st October.

Remarks.—It is not easy to imagine a more loathsome object than this poor old man presented, and, although no distinct history could be obtained, it may be denominated (I presume) a form of secondary syphilis. In so virulent a degree of inflammation, threatening such destruction, but little can be conceded to fomentations, which were conjoined in the treatment, or the few grains of camphor introduced into the ulcerated openings. The symptoms began to subside speedily, as the system very early became affected,—judging from the mouth, as well as the amendment. The mouth I thought it prudent, for the sake of the neighbouring parts, to expose to the vapour throughout the whole period of the fumigation, thereby inducing a more than usually profuse salivation, and rather severe ulceration of the mouth. The only other inconvenience experienced was a little gastric derangement, which an emetic and gentle aperient removed. A small cicatrix is the only exterior vestige of disease now remaining. The features are again natural; and a slight purulent discharge from the nostrils, which remained for some time, was cured by a gently astringent injection.

September.—Blucgwatta, shop cooly. For the last ten months or so has been in delicate health, and suffering from general pains. Complaints originated in jaundice, for which he took mercury. Is at present thin and emaciated, and general health is greatly impaired. Has used medicines of various kinds at different times. Fumigated, three times daily, with the simple oxyde of mercury, for fourteen times. Mouth tender on the second day, when the pains began to give way. Cured.

Remarks.—This case of chronic rheumatism, besides the speedy relief procured, is only remarkable for the fumigatory employed,—the common blue-pill mass of our pharmacopœia.

Dhondoo Parab, Sepoy, admitted on the 3d instant. Has concealed a venereal infection for fifteen days. Penis greatly

swollen, tense and very painful, with gangrenous inflammation of the prepuce, which at one place is ulcerated through, and discharging a foul, bloody pus. A poultice was applied for two days; but the progress of disease became so threatening to the penis, that fumigation was resorted to on the 5th. On the 6th, the mouth was tender, and the line of separation between the diseased and sound parts of the prepuce forming; and, on the 7th, the prepuce dropped off, leaving a clean sore, as if circumcised, and exposing a deep foul ulceration in the body of the glans. Mouth very sore, and salivation profuse, partly from the native composition, and partly from the oxyde of mercury. Sore healed under simple dressing, and blue-stone occasionally.

Remarks.—This case affords an instructive lesson of the good effects of speedily impregnating the system, in cases of virulent primary venereal sore; and the simplicity of the process by which this can be accomplished, and disease arrested. Fumigation may here be said to combine all the advantages derived from the general and topical application of mercury. This patient was returned to his duty early in October, with no more mutilation than circumcision causes, although, on entering the hospital, the prognosis was so unfavourable. I have never seen circumcision by the knife heal more speedily; a fair test, it may be allowed, of all morbid taint in the system being destroyed.

Observations.—Having professed obligations to the native practice of mercurial fumigation, and adduced examples in support of its sanative efficacy, I shall now mention the composition which is in use in this corner of India, either for adoption in all its crudeness, or to benefit by the improvement of the more cultivated judgment and systematic experience of others.

Quicksilver ʒiij. = 1 iola.
Litharge (*moordarsing*,) ʒj. ϑij. = ½ iola.
Red lead (*sendoor*;) ʒiij.
Sulphate of copper ʒss.

The whole is well triturated together, for about two hours, with a quantity of the leaves of a jungle plant (*shetur*), till formed into a mass, which is divided into fourteen portions, each the size of a small nutmeg, for use. One of these being laid on a small bit of tile, this is placed on live cow-dung, in an earthen dish, on the ground, between the patient's legs, who, in a sitting posture, is enveloped in a blanket. In about half an hour, the operation is over, the mercury being volatilised; and it is usual to employ this morning and evening.

The merits of such a compound must, I presume, be allowed to rest on its remedial virtues, and the nicety of analytical research forborne, in tenderness to its curative effects. But, although refinement may smile at its rudeness, and chemistry

might detect much that is unscientific in a combination which such ingredients form, and perhaps caution, *a priori*, might shrink from its employment, it may be that the most fastidious will discover more that is extraneous than noxious in it. The following sentiments of Dr. Paris, in his "Pharmacologia," will be received as respectable support, at least of the latter part of this opinion. "Certain bodies," says Paris, "appear likewise to be incompatible with the compounds of lead, not from the chemical changes they induce, but from the contrary effects they produce upon the body: thus, mercury appears to invalidate their powers, and to counteract their effects, as we may have observed in treating saturnine cholic."

But, far from advocating a remedy on any ground which sound principle and experiment do not support, and (in common, probably, with most medical men,) rather inclined to be sceptical and wary in any deviation from established truths, than become the partisan of equivocal hypothesis, it will be observed, in my latter cases, that a simple oxyde of mercury was employed. It was partly the dread of the saturnine portion of the composition which made me resort to this change; but whether, in cases of phagedena, or virulent venereal ulceration, requiring speedy arresting means, lead may not be a very essential fumigating principle, must be left to experiment to decide. As the simplest form, and one always to be procured, I employed the common blue-pill mass, in the quantity of half a drachm each time, which probably, both in quality and quantity, is not far removed from the native preparation of mercury.

It is not my intention, in this communication, to enter on the merits or demerits of a plan of using mercury, which (not more favoured than others) has at various times had its abettors and detractors: neither shall I further enlarge on its modified combination. The opportunity has been afforded me of proving it favourably, and the results of my success I have confidence in giving publicity to. I have also had occasion to know that, in respectable hands elsewhere, since my first cases were promulgated, it has generally fulfilled expectations; and, from this union of success, it has been favoured with the recommendation, to the gentlemen in his division, of one of our most experienced medical officers, who superintended my hospital. In venereal affections of every stage, it is in universal use among the native population, who (so far as I have observed, and can learn,) exhibit no deforming traces, either of its baneful consequences or inertness.

Therefore, from a certain satisfactory experience, and an anticipation of the valuable purposes, in morbid conditions of the system, to which so active an agent as mercurial fumigation, may be safely applied, I hope that this little practical sketch

may be acceptable.—*From the London Medical and Physical Journal for July*, 1825.

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8. *Connexion between the anterior Lobes of the Brain and the Motions of the Tongue.*—M. Bouillaud, in a Memoir on the Influence of the Brain on Muscular Motions, and especially on those of the organs of Speech, concludes, from the result of his own observations, as well as from a great number of cases related by different authors, that the anterior cerebral lobes are particularly concerned in the motions of the tongue. Whenever palsy of that organ has been observed, a greater or less degree of alteration in this portion of the brain has been remarked.—*Revue Med.* Avril.

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9. *Sense of Smell independent of the Olfactory Nerves.*—M. Magendie has communicated a case to the Royal Institute of France, communicating his views relative to the olfactory nerve, which he considers as having nothing to do with the sense of smell. It is the case of a man, in whom the inferior portion of the brain and the olfactory nerves were impaired (*alteres*) or destroyed, although he still retained the sense of smell.—*Ibid.*

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10. *Reproduction of the Crystalline Lens.*—M. Coqueteau has made a series of experiments, with a view of ascertaining to what extent this lens is capable of reproduction. From these experiments it would appear, that, when the crystalline lens is removed without destroying the capsule, the lens is regenerated. M. Demours has made numerous experiments relative to the same investigation; the results of which have led him to conclude, that no reproduction takes place unless some fragment of the lens has been left behind. M. Roux operated, five years ago, on an individual affected with double cataract. The crystalline was extracted; since which time he has seen perfectly well, and the myspia, which existed for some time after the operation, has completely disappeared. It continues to diminish every day; so that he has rather become presbyotic, with reference to his former condition.—*Revue Med.* Mars.

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11. *Unnatural Growth of the Bones of the Cranium.*—M. Devergie, sen. records the case of a veteran, who lately died at the Val de Grace, in consequence of an aneurism of the aorta. On opening the body, all the suborbital portion of the base of the cranium, and of the frontal bone, was found considerably thickened, and presenting on the right side an enormous schirrous tumour, which had caused the obliteration of the greater part of the olfactory foramina. The growth of bone had also contributed to narrow the diameter of the optic foramina, by

which those nerves were evidently compressed. Nevertheless, there was not any symptom present, during life, to induce the suspicion of so extensive a disease, and no imperfection was observable either in the sight or smell.—*Revue Med.* Avril.

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12. *Bloody Tumor in the Abdomen.*—A young man, a patient in the Hôtel Dieu, had experienced for some time a pain in the umbilical region, when, through the abdominal parietes, a tumor of some volume was felt. After remaining some time in the hospital, he expired in a fainting fit. On opening the body, a tumour, of the weight of two pounds, formed by blood extravasated between the layers of the mesentery, was discovered. The coagulum was very friable, and divided, almost *ad infinitum*, by cellular tissue, in which the extravasation had taken place; but the source of the hemorrhage could not be discovered.—*Ibid.*

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13. *Death from Acupuncturation.*—Among the clinical cases recorded in the practice of M. Recamier at the Hotel Dieu, we find that of a man afflicted with the colica pictonum. Having been under treatment for several days, without deriving any benefit, on the 7th of February three acupuncture needles were placed in the abdominal parietes,—one at the epigastrium, and two others, one on each side of the navel: the needles were five inches long, penetrated into the abdomen two and a-half inches, and as much remained externally. The man, instead of remaining quiet as directed, went in this condition to stool; and the two needles placed at the side of the navel, having no heads, escaped into the abdomen; that situated at the epigastrium was taken out, a little rusted. The man did not seem to feel any ill consequence at the time; but in the night he was seized with delirium, and the next day, though he was able to reply to any questions put to him, he relapsed immediately into the same state. The abdomen appeared free from pain, and there was no other particular symptom. He died in the evening; and we are told that no traces of inflammation were found in the abdomen, or any where else. One of the needles was found in the mesocolon, the other fixed in the peritoneum, in the side opposite to that at which it had entered.—*Revue Med.* Avril.

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14. *On the Sensibility of the Nerves of the Senses.*—M. Magendie, at a recent meeting of the Institute, communicated verbally some observations on this subject. He is of opinion that the sensibility of the nerves of the senses is entirely relative to the kind of impression which they are destined to communicate; that the retina, for example, is only sensible to light, and that it may be pressed, pricked, or torn, in animals, without exciting

pain. A short time ago, in operating for cataract on a woman, M. Magendie accidentally touched the retina, without his patient manifesting any sensation. Having afterwards touched the retina of both eyes, he ascertained, in the most satisfactory manner, that this part is as insensible in man as in other animals. The woman did well.—*Bulletin des Sciences Medicales*, Mars.

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15. *On the Galvanic Phenomena which accompany the Acupuncturation.*—M. Pelletan has ascertained, by means of the galvanometre of M. Bicquerel, that perceptible quantities of this fluid are always disengaged by a needle plunged into a part of the human body affected with pain. The quantity is extremely small; perhaps, says M. Pelletan, not equalling the hundredth part of what is obtained from a single plate of a common voltaic pile. Nevertheless its effects may be rendered sensible; for which purpose, it is sufficient to make the needle inserted into the affected part communicate with the mouth, by means of a metallic wire. M. Pelletan thinks these galvanic phenomena unconnected with the curative effects of the operation; which opinion is founded upon the circumstance of the relief obtained by the patient being in no case in proportion to the quantity of the fluid disengaged; and that very marked effects result from the acupuncturation, even with a needle terminated by a non-conductor. No perceptible difference presents itself with regard to the degree of relief between the use of needles ending in non-conductors, and those so arranged as to allow the electricity to pass off. It is asserted by M. Pouillet, that no galvanic phenomena present themselves when needles made of platinum or gold are employed; for which he infers that, in the cases alluded to, the effects were the result of the oxidation of the metal. M. Pelletan has seen incontestible success follow the use of the acupuncturation, particularly in rheumatic affections.—*Ibid*, February.

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16. *Rupture of the Spinal Marrow.*—M. Andral has related, on the authority of M. Velpeau, a case of disorganization of the spinal marrow, which gave rise to no symptoms by which the existence of so severe an affection could have been suspected. The singularity of this fact, and the deductions drawn from it by the author, gave rise to a discussion at the Royal Academy of Medicine, in the course of which various members related instances of the complete destruction of organs important to life, in which no suspicion was entertained of the nature of the disease, until it was ascertained by examination after death. Among others, the case was related of an individual long affected with hemiplegia, in whom the most minute dissection discovered no vestige of morbid alteration: the brain and spinal

marrow, the circulating system and lungs, the digestive organs and the kidneys, were successively and ineffectually examined. —*Revue Medicale*, Mars.

17. *Unusual Appearance of the Blood.*—M. Velpeau relates the case of a man, robust and of good constitution, who had never experienced any severe illness during his life: he had been much given to venereal indulgencies, but had not suffered from syphilis. At fifty-seven years of age he fell upon his right side, and was not restored to health for sixty-five days. Soon after he attained his sixtieth year, he observed that the left side of his abdomen increased in size, and he felt in that situation a tumor, which did not, however, become painful until the end of December last. From that time his health declined, without any particular malady;—he continued to eat and drink, and was not confined to his bed. On the 16th of February, he felt a sensation of heat rising to his head; soon after, his face assumed a bluish cast; he complained of head-ache and deafness, but did not lose his recollection. After some remedies had been ineffectually tried, he died on the 19th, at three o'clock in the morning. On opening the body, all the internal membranes appeared very highly coloured, but without thickening or alteration of texture. The colour was derived from vessels gorged with a thick blood, the colour of the lees of red wine. The same coloured fluid filled the vena cava, the aorta, the auricles, and the heart. The blood was not coagulated, neither could it be called fluid; it was nearly the consistence of *bouillie;* it was of a reddish-black colour, analogous to that of the lees of pure red wine, or to that of the matter of abscesses which are sometimes formed in the liver. This was the case over the whole body; in no part did the blood present its natural character. The spleen weighed ten pounds; the liver was double its usual bulk; but neither of these viscera were disorganised, nor was there any alteration of texture to be found in any part, excepting some ulcerations in the descending aorta, and some of its principal branches; the veins were healthy. It may be remarked that the change in the appearance of the blood was such as to induce a question whether the vessels were not filled with purulent matter.—*Archives Generales*, Mars.

18. *Strangulation of a portion of the small Intestines.*—M. Esquirol relates a remarkable case of strangulation of a portion of the small intestines. An accidental bridle united the broad ligament of the uterus on the right side with the rectum on the same side. A portion of intestine had passed, in the first place, between this bridle and the sacrum, afterwards through the same band and the anterior parietes of the abdomen, and had lastly entangled itself between the sacrum and the bridle, so as to

form a kind of running knot. The woman who had been the subject of this strangulation died, at the end of a few days, of the symptoms which this accident usually produces.—*Ibid.*

19. *On the Use of the Oil of Croton in Inflammation of the Bowels.*—Professor Morichini, of Rome, wishing to ascertain whether the use of this remedy might be permitted in inflammatory affections of the bowels, prescribed it in two cases of gastro-enteritis. They were both females. One drop of the oil was mixed with an ounce of simple syrup, and administered in two doses, with an interval of two hours between each. The first patient did not experience any sensation of heat in the fauces. Two hours after, the bowels were moved, and during the night thirteen stools were procured, which produced much prostration of strength, but no pain comparable to that which she had suffered. The other patient, aged seventy-five, when seen by the Professor, had fever, with acute pain and tension in the abdomen, hard pulse, flushed countenance, anxiety, nausea, and constipated bowels, for seven days; although many glysters, with oil and common salt, had been thrown up. At three o'clock she was bled to the amount of twelve ounces; had her abdomen fomented, and an oily embrocation used, besides glysters of decoction of marshmallow and oil. At eight o'clock in the evening, one drop of the oil of croton, in an ounce of syrup of marshmallows, was ordered to be given in two doses, with an interval of two hours between each, provided the first produced no effect. The first dose, however, procured seven evacuations, which followed each other rapidly. The woman slept afterwards; and, though some fever remained the next day, it was only necessary to continue the fomentation, with demulcent drinks, to complete the cure.

From the result of these cases, the Professor is inclined to think that, although it would not be proper to administer this medicine in the height of an inflammatory attack, yet when, by means of bleeding, copious warm dilution, and other means, abdominal inflammation is in some measure allayed, the oil of croton may be administered, without any apprehension of reviving the phlogistic state,—or rather, indeed, with a certainty of overcoming it altogether.—*Annali Universali*, Dec.

20. *Various Morbid Alterations in New-born Infants.*—M. Bricheteau lately read, to the Academie Royale de Medicine, a report on the work of Dr. Veron, containing three cases, in which the fœtus had been affected with inflammations, similar to those which affect the adult. In one of these, a child, which only lived twelve or fifteen hours, the post-mortem examination led to the discovery of a pleurisy,—viz. effusion of purulent fluid in the thorax, formation of false membrane on the pleura.

redness and injection of vessels. In the second, the infant presented traces of peritonitis; and in the third there had been inflammation of the thymous gland, with the formation of pus in the interior of that organ. M. Bricheteau added other facts to those of M. Veron: for example, he quoted instances in which children were born with small-pox; a circumstance confirmed by the experience of various other members of the Academy. M. Desormeaux gave the history of a child who was born with every symptom of an intense enteritis of long standing, and which was cured. M. Husson lately opened, at the Hôtel Dieu, the bodies of two infants,—one born dead at the seventh month, the other which only lived eight days,—both of which had tubercles, already softened, and in a state of suppuration: the former in the lungs, although the mother was in good health; the latter in the liver. MM. Dupuy and Andral mentioned having found tubercles in the fœtuses of some of the lower animals; and M. Andral, in opening the body of a woman who died of phthisis, found the supra-renal capsules of the fœtus inflamed and suppurated.—*Archives General*, Mai.

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21. *Use of the Kali Hydriodinici in Cutaneous Cancer.*—Dr. Grafe, of Berlin, has published a few short remarks upon the curative power of the kali hydriodinici in cutaneous cancer. In the case of a woman whose breast was affected with this disease, and who had in vain employed other remedies, an ointment, composed of one drachm of the above preparation and two ounces of simple ointment, was applied once a-day. The wound soon assumed a healthier appearance; the callous edges disappeared, and cicatrisation soon began. The strength of the ointment was now doubled. The healing of the ulceration proceeded rapidly, and in the course of a few weeks it was quite well.

In cancerous affections of the upper lip, also, the same preparation has been employed with much advantage.—*Journal fur Chirurgie, &c.* Grafe and Walther; band 7, stuck i.

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22. *The Use of the Rhus Toxicodendron in Palsy of the Limbs.*—A young man, twenty years of age, of a strong frame, but stupid mind, was admitted into an hospital for a rheumatic affection, which passed off. He subsequently complained of no pain; he ate and slept well. The muscular power of his hands and feet was diminished, and they were almost useless; the fæces were sometimes passed involuntarily. As this symptom was attributed to his natural stupidity, he was threatened with punishment. The power of his limbs was now so completely lost, that he was obliged to be dressed and undressed like a child. In a short time he could not even move his fingers, and was incapable of feeding himself. Various remedies were ineffectually employed; amongst others, the phosphorus in an emul-

sion. Two days after the use of this article, he became perfectly jaundiced, and was attacked by fever. The relater of the case was now "at his wit's end;" he knew not what to do, and therefore determined to do nothing. In a few days, the last-mentioned symptoms passed off. The appetite returned, and the palsy of the extremities alone remained. He improved so much in general appearance, that another effort was determined upon, to endeavour to afford him relief. Upon the principle of Celsus, that it is better "anceps remedium experiri quam nullum," the rhus toxicodendron was given,—a drop night and morning. In eight days, the patient could move his fingers; in a month, the arms and feet. The dose of the remedy was gradually increased to ten drops. In two months, he had the perfect use of his limbs. He was shortly quite restored to bodily health; but still remained in a state of mental imbecility.—*Allgemeine Med. Annalen.* Jan. 1825.

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23. *Large Calculus passed from the Female Urethra.*—A case is related by Dr. Sommer, in the *Journal der Chirurgie und Augen-Heilkunde*, (band 7, heft i.) in which a female, of nineteen years of age, after suffering from severe pain in passing her urine, and occasional retention of it, had a catheter introduced, by which a stone was discovered obstructing the passage. The urethra was dilated by forceps; the stone was grasped by them, and withdrawn. It was found to weigh ten drachms and a-half; its long diameter measured two inches and a quarter; the transverse diameter was one inch and a quarter: it was of a whitish gray colour, tolerably hard, and rough upon its superficies. The patient soon recovered.

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24. *Extirpation of the Clitoris.*—An interesting, but unnecessarily detailed, account of this operation is given in Grafe and Walther's *Journal der Chirurgie und Augen-Heilkunde*, (band 7, stuck i.) The subject of it had existed in a state of complete idiotism from a very early age. Many ineffectual endeavours were made to afford relief by several celebrated German practitioners, as it was considered that the mental affection was dependent upon corporeal disease, and therefore susceptible of cure. At the age of fifteen years, the wretched creature was still living, in a complete state of mental imbecility; and it now became necessary to confine her arms in bed, to prevent her from committing incessant masturbation. As her intellectual faculties had for a short time appeared somewhat improved, it became a matter of considerable importance to put an effectual stop to the vice, which would so certainly have been the cause of her remaining in a state of mental hebetude.

After many fruitless efforts to effect this purpose by other means, the extirpation of the clitoris was had recourse to, in the

month of June. The patient was watched, and her libidinous propensities gradually decreased. From this time her mental powers slowly improved. She learnt to write her letters, and was capable of receiving other instruction. She endeavoured to atone for her imperfect powers of speech, by expressive signs. She made some progress in music.

Two conclusions are drawn from this case, by the anonymous relator of it:—

1st. That idiotism is curable, if it is not dependent upon some congenital malformation.

2d. That onanism, particularly when carried to excess, will confirm a state of idiotism.

It is observed that, although the disgusting practice of masturbation undoubtedly confirmed the mental imbecility of the patient, it might still be difficult to determine the primary cause of the idiotism. Self-pollution could hardly have taken place at a very early age, and yet the state of fatuity was complete; and the latter part of the treatment consisted almost entirely in overcoming the disposition to the commission of the vice referred to.

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25. *On Closure of the Pupil in Iritis.* By Wm. Mackenzie.—Although obliteration of the pupil is by far the most important symptom in iritis, hitherto no explanation has been offered of this remarkable morbid change.

The mere inflamed state of the iris seems quite insufficient to explain it. The effusion of fibrin into the posterior chamber is sufficient to account for the pupil not opening again; after it is once closed, but does not account for the closure in the first instance Intolerance of light is not the cause, for in general this is not an attendant on iritis. Inflammation of the retina is not the cause; for, although occasionally the inflammation in iritis does spread to the more deeply-seated textures of the eye, it is much more common to see the pupil completely obliterated, while the retina continues sound, so that vision may afterwards be restored by the formation of an artificial pupil.

In the Lectures on the Structure and Diseases of the Eye, which I have given for the last seven years, I have ventured to ascribe the closure of the pupil in iritis to the fact, that the natural state of that opening (the state into which it falls during the insensibility of sleep,) is closure, not expansion. The discovery of this fact we owe to Fontana;* its truth has been acknowledged by Janin† and Cuvier,‡ and may easily be ascertained by any inquirer. Approach a child fast asleep, and sud-

* Dei Moti dell' Iride. Lucca, 1765; page 21.
† Mémoires sur l'Œil. Lyon, 1772; page 8.
‡ Leçons d'Anatomie Comparée, tome ii. page 409.

denly raise the upper eyelid; the pupil will appear all but closed, and only gradually, as the state of sleep is broken, will it be seen first of all to expand, and at last to accommodate itself to the degree of light to which the eye is exposed.

Iritis is always aggravated, and often appears to commence, during the night, particularly after the operations for cataract. The probable cause of this is the contraction of the pupil, or rather the expansion of the iris, during sleep. Hence the propriety of applying the extract of belladonna to the forehead every evening, particularly in cases of incipient iritis.

If no means are used to counteract the progress of iritis, the pupil is observed to become, day after day, smaller and smaller, and less and less dilatable, till it be completely closed and bound down by effused fibrin to the anterior hemisphere of the crystalline capsule. If belladonna only be employed, without the detraction of blood and the exhibition of mercury, the pupil will be kept dilated; and, if the narcotic has been applied early in the disease, the pupil will be widely expanded, and in this state will become adherent to the crystalline capsule. The detraction of blood, to lower the sanguiferous action,—the use of mercury, to prevent the effusion of fibrin, or to bring about its absorption, if already effused,—and the application of belladonna, to counteract the return of the iris to its natural state of rest, relaxation, and expansion, during sleep, makes up, then, the chief parts of the treatment of iritis, whether the disease be traumatic, atmospheric, or syphilitic; and the belladonna ought to be applied, not irregularly or merely every second or third day, but regularly every evening.—*From the London Medical and Physical Journal, August*, 1825.

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26. *Remarks on the Medicinal Properties of the Croton Oil.* By Ed. Tegart, Esq. Inspector of Hospitals, &c. &c.

London, 22d May, 1825.

Sir,—Regular and liberal-minded medical men have ever considered it a duty they owe to their professional brethren, as well as to society in general, to communicate whatever (whether it may be the result of scientific research and discovery, or useful practical experience,) they may conceive beneficial to mankind, in preserving health, in alleviating pain, or in curing disease. Acting upon this principle, I feel myself called on to state, that I have witnessed so much benefit from the use of a medicine imported into this country by you a few years ago,—I mean croton-oil,—that I cannot, in justice, withhold from you the high opinion I entertain of its great efficacy in many diseases.

Early in 1821, which was soon after the croton-oil became known in England, I was appointed to the superintendance of

the medical department in the West Indies; and, as I had seen some, and heard of many extraordinary cases of its powerful effects as a purgative medicine, I was forcibly impressed that it would prove an important remedy in the diseases of that country. I therefore took out with me a supply, in order to give it a fair trial. I take credit to myself for having been the first who introduced it into that part of the world, the diseases of which it appeared to me so eminently calculated to oppose. I sent a small quantity to all the colonies and islands, with a circular letter addressed to the principal medical officers; a copy of which I shall subjoin to this statement. I will also add an extract of a letter from me to the director-general of the army medical department, on receiving the required communications from those officers.

The Reports from the different stations fully confirmed the favourable opinion I had formed of this medicine. These documents were sent by me to the board at home; and, should you wish to see them, or to obtain extracts from them, you will find every facility, the director-general and principal inspector being at all times desirous of imparting to the profession, and to the public at large, any and every part of the important information which they are constantly receiving from their officers stationed in every part of the world occupied by British troops.

Besides the official reports from the army medical officers, numerous cases were transmitted by them, as well as civil practitioners, which I now regret were left at Barbadoes, because they might have been useful, as furnishing undoubted testimonials of the variety of diseases in which the croton-oil was employed, and the success which attended its exhibition. It not only proved an active remedy in acute affections requiring depletion, but a stimulant one also in chronic visceral complaints: even when water had been deposited in the abdomen and chest, it acted as a powerful hydrogogue.

Dr. Lefort, physician to the king of France, and chief of the medical staff in the French West-India colonies, having heard of the success of this medicine in our islands, requested from me a small quantity. He was so much satisfied with its effects, that he immediately sent to London for a large supply; he has, no doubt, reported its success to his own government. This gentleman has lately published an excellent work on yellow fever, and, as he is an able and scientific man, he will soon discover that croton-oil is not to be confined solely as a purgative, and he will administer it, as we have done successfully, not only in our military hospitals, but by the private practitioners throughout our colonies, in all cases requiring depletion, either by the alimentary canal, kidneys, or skin.

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When I first saw the croton-oil prescribed in England, it was

given with the sole view of emptying the bowels; but experience in the West Indies soon convinced me that it was an excellent febrifuge medicine, after the first object had been attained. Dissolving it in spirits of wine, and then diluting it in any palatable vehicle, so as to give it in the proportion of about half a drop for a dose, every three or four hours, it keeps the bowels open, increases the urinary discharge, and relaxes the skin: these are important objects to gain at the commencement of all febrile affections.

Pyrexial attacks in tropical climates, but especially amongst soldiers and sailors, who, from intemperance and irregularity, are exposed and predisposed to such, are almost always attended with torpid bowels, constricted skin, and great determination of blood to the head. In such cases, the indications, of course, are to remove those symptoms; and I have seldom or never seen two or three drops of croton-oil fail in effecting that end. The lancet and warm baths are, however, generally employed at the same time in such cases. I have never known this oil disappoint my views when given as a purgative, and administered in proper time; but I have known some cases, and have heard of many, in which it has failed to operate. I am inclined to think those failures happened from too long delay, and that gangrene had taken place. Certainly I have known it act powerfully in many cases where calomel, scammony, gamboge, and other drastic purges, have been employed in vain.

With the exception of apoplexy and coup de soleil, I am not aware of any other disorder in which the croton-oil is employed with more evident effect, than in yellow fever. In this disease there is generally incessant vomiting, with obstinate constipation of the intestinal canal. To remove this obstruction, is a most important measure with the medical attendant: but how is he to accomplish this, as no medicine hitherto discovered could be retained on the irritable stomach? Two or three drops of this oil, applied to the tongue, will soon find its way to and through the stomach, thereby relieving that organ, by giving another direction to its morbid secretions. To relieve the sufferings, or to lessen the ravages of this formidable disease, would be a desideratum in our art. No remedy, that I have yet heard of, has done, or is likely to do, so much good as the one in question. In short, I think so highly of it, and consider it so valuable a medicine, that I have recommended it to be (and I hope it will be,) a permanent article in all military medicine chests.

In concluding this letter, I would beg to suggest to you, that every possible precaution may be taken by you to prevent the adulteration of the croton-oil, as I am informed that, in many instances, ten or fifteen drops have been given to produce the desired effect. You will, I am sure, best consult your own ad-

vantage, as well as public benefit, by preventing such wicked and dishonest practices on the part of the retailers of this medicine. I would further recommend that glass stoppers may be used instead of corks for the phials, as it is often found difficult to extract these corks, which are frequently decayed, probably from the action of the oil.

I am, Sir, your very obedient, humble servant,
EDW. TEGART, *Inspector of Army Hospitals.*
To Arthur Short, Esq. No. 11, Ratcliff Highway, London.

Copy of a Circular Letter from Inspector of Hospitals Tegart, *to the principal Medical Officers of Stations in the Windward and Leeward Islands.*

Head-quarters, Barbadoes, June 21*st*, 1821.

Sir,—Herewith I send you a small phial of the oil of the croton nut, which has been lately imported into England from the East Indies. In that country it was found eminently useful as a purgative medicine, exciting the secretions, relaxing the skin, and acting on the whole system as a most efficient febrifuge.

It has been used in the public hospitals and institutions of London, with decided success. I myself have exhibited it, and seen it given by others, with an astonishing good effect. The facility of conveying it into the stomach (one drop being a dose,) and the quickness of its action, will render it a most important remedy in our materia medica. In apoplexy, I have known a patient, insensible and incapable of swallowing, purged and relieved in one hour, by merely putting one drop of this oil on the tongue.

From what I saw of this medicine, I augured most favourably of its powers in the ardent remittent and yellow fever of the West Indies. I was therefore induced to bring with me a small quantity, for the purpose of trying its efficacy. Should the result prove favourable, I will make it known to the board, and request that a supply may be sent out for the use of the colonies.

The dose of this oil is from one to three drops; I have generally given two. In severe and sudden cases, such as apoplexy and coup de soleil, two drops on the tongue will be found sufficient. When there is irritability of stomach, it will be proper to give it in two ounces of peppermint-water, (rubbed down first with a little mucilage;) for it sometimes creates nausea and sickness. When given alone, it excites great heat in the mouth, which lasts for a considerable time.

How this oil acts, will afford ample subject for physiological discussion. From the sudden stimulating effect it produces, when applied to the epidermis; from the warmth it communicates to the œsophagus and stomach, and from the increase of the peristaltic motion, we may suppose it acts directly on the sensorium. I have witnessed a case of tic doloureux cured by

it, when given with the intention only of removing a torpor of the bowels, which usually attends that disease.

In making this statement, it is far from my wish to create a prejudice in favour of this medicine. I am anxious to have it fairly tried, and reported upon. I am to beg you will make a selection of a few cases, watch attentively the effects, and give me your opinion. I trust it may be a long time before you will have an opportunity of giving the croton oil in yellow fever; but other fevers we may expect to witness daily in this climate, which, if benefitted by this means, may give fair grounds to hope that it may be advantageously employed when that formidable disease again appears amongst us.

I have to request you will, with as little delay as possible, make this experiment at ——; and communicate to me the result, by detailing a few cases, together with the form in which you have ordered the medicine. It will be but fair to aid its operation with the lancet, which, I believe, is now generally practised in all recent attacks of fever. It will be well, also, not to confine the experiment to acute diseases; because I think the remedy will be found very useful in chronic cases, particularly where visceral obstruction exists. I shall not fail in apprising you of the collected opinions on this subject, after the reports arrive at head-quarters.

I have the honour to be, Sir, your most obedient, humble servant, (Signed) EDW. TEGART,

Inspector of Hospitals.

Extract of a Letter from Inspector of Hospitals Tegart, *to* Sir James M'Grigor, Director-General Army Medical Department.

Barbadoes, 30th November, 1821.

A short time before I left London, a purgative oil, of a very extraordinary character, had been imported from the East Indies: the qualities ascribed to it were such, that I thought it my duty to give it a trial in this country. I purchased about thirty bottles for that purpose: and, soon after my arrival, I sent one or two to each of the islands and colonies in the command, in order that its effects might be ascertained, and reported upon. Herewith I have the honour of transmitting a copy of the circular letter written to the principal medical officers on the occasion.

As only very few have reported on the croton-oil, I will withhold them until the others arrive, and send them all at the same time. I will now merely send for your perusal a few extracts from letters on the subject, by which you will see that this medicine is highly estimated and extolled by some, although not noticed by others. For my part, my mind had been decided on its powers before I left England; and I have reason to think I shall not be disappointed in my expectations of it in this coun-

try. It is a remedy that, I think, will make its way, in spite of prejudice and opposition; and it has many opponents,—some from, perhaps, commendable caution, in not using a medicine until time and practice have ascertained its effects; and others from prejudice in favour of their own particular remedies, which long practice has convinced them that no others can equal or surpass.

The croton-oil will, I think, be found a most powerful remedy in many diseases, both in high and low latitudes: between the tropics, I think, it will be particularly so, from the rapidity of its action on diseases where delay is death. The facility of administering it, and the certainty of its action, are strong in its favour. It is now much known in this island, and I have had frequent applications from the inhabitants for a little, but my means of supplying are now very limited, as I have only a few bottles left. I did not intend making a requisition until I could accompany it with the reports from the out stations; but, as they are not all arrived, and as my stock is so small, I am under the necessity of requesting that you will be pleased to direct a supply of one hundred bottles, to be sent out by the packet, should the yearly supply of medicines have left England before this arrives; but, if they are not yet embarked, the croton-oil may be forwarded at the same time. I enclose the address of the person in London from whom I purchased what I brought to this country, and who is the only person that sells it.

Extract from Inspector of Hospital Tegart's *Annual Report for* 1823, *addressed to the Army Medical Board.*

Barbadoes, 28th February, 1824.

There are very few of the annual or occasional reports from the colonies, that do not record fresh instances of the powerful effects from this medicine (croton-oil.) It is gaining ground in reputation every day; and will ultimately overcome (as I predicted last year,) the prejudices which were entertained against it. The smallness of the dose and its active operation, occasioned fears in the minds of those who had not seen it given: these alarms have now ceased, and it is considered perfectly safe. The heat and irritation in the mouth and fauces are against its exhibition; but what man of sense would hesitate, from so trifling an inconvenience, to administer it in an important and dangerous disease.

I always feel gratified in reflecting that I introduced this remedy into this country, where their is such a field for displaying its powers. The best and most flattering account I have yet seen of its efficacy, is from the chief of the medical staff of the French islands, Dr. Lefort, who has requested me to order him a supply to be sent from London to Martinique. He recommends its exhibition in form of pills, to prevent the burning sen-

sation when given in a liquid state. I began its use by dropping it on the tongue, and, having witnessed in that way its constant and unvaried success, I am unwilling to alter the mode of exhibition. I should apprehend it might not have the active and immediate effect, if it did not come at once into contact with the epidermis and lining membranes of the stomach.

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27. *Employment of Caustic to destroy the Variolous Eruption.*—M. Velpeau read a memoir to the Royal Academy of Medicine, tending to prove that, if the pustules of the small-pox are cauterised within the two first days of their appearance, they die away entirely; and, if this is done even later, their duration is abridged, and no traces of them are left. The caustic he employs is a solution of nitrate of silver, in which he dips a probe, with which he pierces the centre of each pustule. M. Dumeril says that he has been long familiar with this practice, but, instead of the solution, he employed the solid caustic itself.—*Archives Generales*, Juin.

INTELLIGENCE.

No. XIV. of the New York Medical and Physical Journal, has appeared under a new editorial arrangement. With Dr. Beck, who has heretofore so ably conducted this valuable work, are associated Dr. Peixotto and Dr. Bell, Professor of Anatomy in the University of Vermont. The Medical Periscope of the city of New York, which furnishes so wide a field for observation, must certainly yield much that is interesting and instructive. The talents of the above gentlemen are amply adequate to the occasion. Dr. Beck, particularly, is well known as one of our most classical medical writers.

We think that a work of this character, emanating from such a source, should be in the hands of every practitioner in our country.

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